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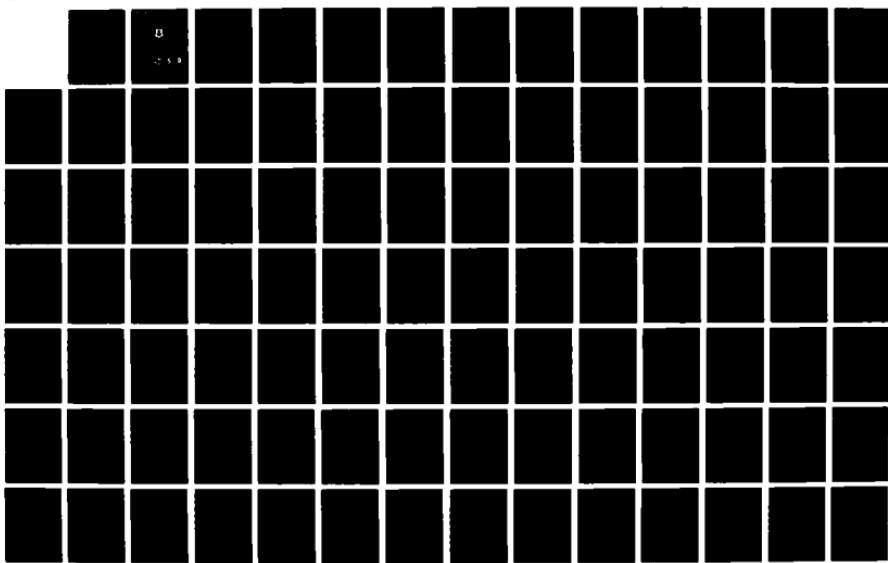
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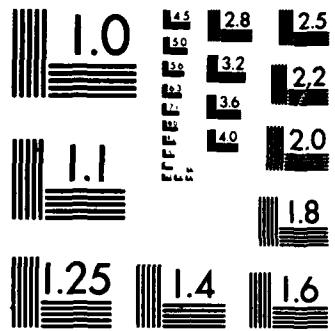
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→ *Partials*

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2. Graduate student Zhang Jing of Beijing Industrial College said: The people have sweated and even sacrificed their lives to pave the road for us to obtain knowledge, we should serve the people.
3. Student Jiang Chongshao of Beijing Language College said: Between teaching abroad and conducting political thoughts undertakings, I choose the latter.

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ADVANCED EDUCATIONAL INSTITUTIONS SHOULD CULTIVATE QUALIFIED  
TALENTS FOR THE CONSTRUCTION OF SOCIALISM

President Ding Shisun  
Beijing University  
China Education News (Beijing), 1986. 3. 18. (3)

An advanced educational institution is a base for cultivating talents of our country. It should cultivate large numbers of qualified talents for the construction of material and spiritual civilizations of socialism. This is a concentrated demonstration of insisting on the socialism direction of managing schools and displaying the social benefit it supposedly commands; this is where the fundamental goal for schools to conduct reform lies and is also a core problem in the guidance thought through which we manage schools. Many situations have shown that presently people's understanding in this problem is very inconsistent; therefore, I would like to talk about some of my personal views.

1. In order to cultivate qualified talents, we should first have a correct understanding as to what qualified talents are. In recent years, there have been quite heated discussions on the question of talent. Due to difference in the angle from which to address the problem and difference in emphasis point stressed, people have different opinions as to what constitutes qualified talent and what constitutes outstanding talent. Some people like "One-Thousand-Mile Horse", some people like "Old-Yellow Cow", still other people propose to foster

"Pioneering Type", "Creative Type" talents, etc. I believe discussions can be "kind person sees kindness, wise person sees wisdom"; after all, talent does not come in one shape with one specification and one model. However, whether he is a "One-Thousand-Mile Horse" or an "Old Yellow Cow", and no matter what type he is, he must possess two qualifications at the same time if he is of high value: one is that he must have morality, and two is that he must have abilities. One with morality but without abilities or one with abilities but without morality can not qualify as talent; only one with both morality and abilities, politically loyal and professionally specialized, can qualify as a real talent who meets the requirements of undertaking socialism construction. The so-called morality and abilities, loyalty and specialization all have specific definitions. There are also degrees of having both morality and abilities, loyalty and specialization. Students at advanced educational institutions are the reserves of talents. In order to turn them into qualified talents, they should be equipped with better quality of political thoughts and professional quality simultaneously to set a strong foundation for the two areas of morality and abilities. Because advanced education is a professional education, this kind of education will lose its meaning if students are not allowed to master professional skills. But having just this item is far from being adequate and another more important item is that the students must be willing to contribute unconditionally the skills they have mastered to the socialist motherland. One can not make one's presence felt without skills; however, on the other hand, one with skills but who is unwilling to contribute them to one's own motherland, then not only one's effects can not be displayed but a very bad influence will also be formed. Therefore, the student we have cultivated must possess these two items. These two items are the minimal requirements for being both politically loyal and professionally specialized, and those lacking either one can not be said to be qualified.

We must cultivate qualified talents who possess both morality and abilities and are both politically loyal and professionally

specialized. We must grasp both professional education and political thoughts education well at the same time. Currently, there exists, to various degrees, a weak situation in political thoughts education at advanced educational institutions, and this situation should be changed as soon as possible.

2. It was mentioned before that well-conducted professional education is the necessary means for cultivating qualified talents. Presently, there are still numerous shortcomings in professional education at the advanced educational institutions. In order to make students possess real abilities and knowledge, the reform of professional education must be conducted. In reminiscence of the implementation of reform at Beijing University over the past few years, I feel that the following several questions must be handled well as far as recognition is concerned:

One is about the question of knowledge and capability. In the past we stressed more the passing of knowledge and did not pay enough attention to cultivating capability, and this is a very large defect. The proposition of putting stronger emphasis on the cultivation of capability in the reform process is absolutely necessary. However, knowledge and capability can not be severed and pitted against each other. Knowledge is the basis of capability. Without mastering pertinent knowledge in certain areas it will be impractical to talk about possessing capability of analyzing and solving actual problems in that area. For instance, one can not perform operations of multiplication and division if one does not memorize the "nine-nine table", and this is a simple rationale. Capability is the application of knowledge; if one has knowledge but does not know how to apply it, the knowledge is dead and useless. For example, there is bountiful knowledge in an encyclopedia, but if nobody bothers to look it up, then it is rather useless. The same reasoning applies to a person; even if one is armed with mountains of knowledge but does not know how to apply them, then this person's usefulness is limited. Therefore, the understanding of knowledge and capability should be

dialectical. Among the numerous capabilities, I believe the capability of applying the known in search for the unknown is the most important, and it will benefit throughout one's lifetime.

Two is about the question of setting good foundation and cultivating creative spirit. The process of using the known in search of the unknown is a creative process. In the process of constructing a socialism with Chinese characteristics, there are numerous subjects which require us to search and create, and therefore cultivating students to possess creative spirit is extremely important. But creativity can not be separated from the strong foundation. If Marx had not conducted, in depth, solid learning and research of the entire history and mankind society as well as valuable results researched by previous generations, he could not have created Marxism. There are basic elements in any scientific discipline and these elements are relatively stable and have long-term effects. No matter how knowledge "explodes", it will not be separated from these basic elements. Implementation has proved that when a person has a solid foundation, he is able to absorb new things quickly because new things are developed from the original foundation. Marxism-Leninism is also the same way; the circumstances are changing constantly and Marxism-Leninism itself, however, will not change. If without solid theory, knowledge and skill foundation, and yet still stubbornly wanting to "create", this "creation" is but a mirage.

Three is about the question of broadness and specialization. The students we have cultivated should all have broader sight and a broader knowledge level in order to equip themselves with stronger adaptability and advantageous conditions for continued development. However, the college stage should concentrate on a certain specialized field, up to a certain degree, then comes the question of broadness. Only after expending efforts in a certain discipline and studying to a certain extent can one understand how to learn, how to evaluate the toughness of that discipline and also can one connect it with other related disciplines to make discoveries at the "edge". Contemporary scientists

who are productive all possess comprehensive knowledge and multiple abilities, and they never limit themselves to their narrow, specialized fields. However, they do not uniformly spend their energies over a spectrum of disciplines; they always use their own specialization as a foothold and study it to greater detail and meanwhile, try to understand other disciplines utilizing their own specialization as a base thereby constantly making new progress. If everything is touched only fleetingly like floating light and shadows, broad yet not solid, then only the surface knowledge is obtained.

Four is about the question of theory and implementation. This is an old question which has been discussed by the educational sector over the years. Students during their learning period at school are certainly committed to receiving primarily indirect experiences. It is impossible and also unnecessary to verify these indirect experiences one by one using their own direct experiences. But students should be exposed to specific implementation exercises according to teaching plans. This, on the one hand, can deepen their understanding of the theories and knowledge learned; and on the other hand, this can cultivate their abilities to solve actual problems using these theories and knowledge. Those who study natural science yet can not conduct experiments and those who study social science yet can not analyze situations - this is not acceptable. Today's students generally lack implementation exercises. Some like to just derive and aimlessly talk from theory to theory and they are satisfied with conceptual completion of certain projects not knowing that there is a distance between theory and implementation. Sometimes it still requires great effort in order to accomplish that end. Theory is usually simple and by principle, whereas actuality is complicated and vividly concrete. If theory is not combined with actuality, it will become rigid dogma. We should emphasize on implementational linkages such as experiments, practical training, production laboring, social investigation, military training, etc. in our teaching. Meanwhile, we must pay attention to guide students in the use of after-school hours and vacations to develop activities which involve actuality and contact

with the people such as consultation services, cooperative programs, field observations, etc., thereby making them learn the knowledge that more fully combines theory and actuality, and real skills for serving the people.

I feel that some of the students presently in advanced educational institutions lack a solid learning attitude and that this is counter-productive to their growth. We should join forces with the vast faculties and students to earnestly apply the epistemology of dialectic materialism, correctly handle the aforementioned relationships, thoroughly conduct reform in teaching and combine reform in teaching, establish and promote the excellent learning habit of diligence, discretion, being realistic and creative, thereby turning the vast students into qualified talents who are truly learned and able.

3. To conduct political thoughts education of Marxism for students is the important measure to push them to better master specialized knowledge, establish firm and correct political direction, and possess excellent thoughts, integrity and self-discipline. It is the fundamental assurance for cultivating talents who are politically loyal and professionally specialized. Political thoughts education and professional education are complementary and inter-promoting to each other. The two are both the important compositive portions of university education. As university presidents, the education of these two areas must be grasped at the same time.

Comrade Hu Yiaobang pointed out in his speech on "The Growth Path of Contemporary Young Intellectuals" that: "in order for the younger generation intellectuals of China to grow better, the first important question is to be good at closely combining the far-reaching ideal of communism with present goal of struggle and proceed with both feet on solid ground", "the second important question is to make sure that there is the sacrificing spirit of being unpreoccupied about personal gains and struggling and scoring for the country, for the people and for the establishment of socialism modernization"; "the third important question is to learn, learn and re-learn, implement,

implement and re-implement; namely, to work hard to closely combine basic principles of Marxism and modern scientific knowledge with the actuality of modernization construction of socialism for China". I believe the three questions brought up by Comrade Hu Yaobang have important significance in the cultivation of college students into qualified talents, and they should become the important quiding thoughts in our undertakings of strengthening and improving the political thoughts education.

Looking at the situation at Beijing University, the main stream of condition in the vast students' political thoughts is good. They love the socialist motherland, uphold the lead of the party and are willing to study diligently to make something out of themselves for the construction of four-modernizations. But due to various reasons, there are also quite a few students who have this or that problem in the areas such as political thoughts, moral quality, attitude and discipline, etc., and they are desperately in need of help. I feel that our political thoughts educational undertakings must concentrate on quiding and assisting students to establish ideals in communism, master the stance, viewpoint and method of Marxism-Leninism, and possess the spirit to sacrifice for the prosperity of the country and well-being of the people. Presently, some of the students do not really understand the history and reality of China and do not thoroughly comprehend their duty bestowed by the history, therefore affecting their establishment of strong ideals and faith and a historical sense of responsibility. We must assist students to sharply recognize that, after the Third Meeting of the Eleventh Central Committee Plenary of the party, China has embarked on a great, historical transformation and is concluding the two areas of positive and negative experiences of the past to find, through unprecedented reform, a correct path for establishing socialism with Chinese characteristics. This is an unprecedented great process and the historical responsibility shouldered by the younger generations is to push this historical process forward; this is also an irreversible historical trend and the younger generations can realize their values in life only by following this trend.

Transformation is a kind of interlude which succeeds the past and opens the future. In order to adapt to and promote transformation, first we must treat history correctly and solve those problems inherited from history; and second, we must face the future bravely and welcome the challenges of new things. The history of the Chinese people is a volume of brilliant history and the history of Chinese revolution is also a volume of imposing history. We can not adopt the attitude of nihilism toward history and carelessly deny history just because there had been phenomena such as mistakes, frustrations, stagnations, backwardness and even temporary setbacks, etc. Due to the destruction during the ten-year turmoil, there is a large quantity of historically inherited problems which we need to solve in the transformation. During the process of openness and reform, corrupted bourgeois thoughts from the outside combined with the residual feudal thoughts fostered by the ten-year turmoil is undermining party disciplines and social trends. To face these problems, we should not evade nor should we just sigh and criticize. It is wrong to evade, and to sigh and criticize do not do any good. The correct attitude is to directly face these problems, bravely shoulder the historical responsibilities and follow the party wholeheartedly to work and struggle. In a big country like ours, it is an unprecedentedly difficult and great mission to push the socialism undertaking forward, and we must tackle numerous new subjects which do not have precedences to follow nor are ready-made answers to be found in Marx's and Lenin's writings. This requires that we must use standards higher than those of the previous generation to learn and master the basic principles of Marxism-Leninism, and apply the stance, viewpoints and methods of Marxism-Leninism to solve these new subjects. In conclusion, to eliminate the old and accept the new, to succeed the past and bring in the future are exactly the historical responsibilities shouldered by the younger generations. In order to shoulder these responsibilities, one must have sacrificing spirit. Those who, both in the past and present, and within China and foreign, have contributed toward the progress of history and are respected and remembered by people have all had the sacrificing spirits. From Marx, Engels to Mao Zedong, Zhou Enlai and

from Copernicus, Einstein to Li Siguang, Jiang Zhuying have all been this way. It is difficult to imagine that those who are not willing to sacrifice any personal gains at all can "take upon the whole world as their own responsibility". Therefore, I believe that for the young students who are preparing to take over from the older generations and shoulder their heavy responsibilities, we must truthfully do our duties well to provide them with education in the direction, guideline and policy of the party, education in basic principles of Marxism-Leninism, education in patriotism and education in thoughts, integrity, style and discipline thereby making them possess excellent quality of political thoughts which is required for bearing the historical duty of constructing the socialistic modernization.

Comrade Deng Xiaoping sets forth to "educate the people of the entire country so that they have ideals, have morality, have knowledge and have discipline." This has pointed out the direction for cultivating talents at advanced educational institutions and has put forth the basic requirements. As far as those students currently receiving advanced education are concerned, they should reach a higher standard in the areas of the "four haves", and this is exactly the undisputed responsibility of advanced educational institutions. There are different types of advanced educational institutions, and even schools of the same type can and should have their own characteristics; but there are no exceptions as far as the question of fulfilling this responsibility is concerned. We must let the entire faculty and student body bear this responsibility consciously and implement it to various undertakings throughout the entire school.

THE NATIONAL EDUCATION COMMITTEE CONVENES THE 1986 GRADUATE STUDENTS ADMISSION COMMITTEE MEETING AND PROPOSES THE "ENSURE QUALITY, STEADY DEVELOPMENT" GUIDELINE TO BE THOROUGHLY IMPLEMENTED WHEN ADMITTING GRADUATE STUDENTS---SPEECH AT THE MEETING BY DEPUTY DIRECTOR ZHU KAIXUAN, NATIONAL EDUCATION COMMITTEE

Yen Yuan

China Education news (Beijing), 1986. 4. 12. (1)

Staff Writer The recently convened 1986 Graduate Students admission Committee Meeting by the National Education Committee proposed that every admission unit must fully consider its own school conditions when setting the numbers to be admitted and make sure that graduate students currently enrolled still enjoy learning and living conditions which are basically in line with standards set by the state after new students start school.

During the meeting the representatives earnestly studied the instructions given by comrades in the central leadership on the development of graduate student educational undertaking. The consensus was that everyone believed the admission of graduate students must thoroughly implement the "ensure quality, steady development" guideline, and that the selection for admission must insist on overall evaluations of morality, intelligence and physical health; on the principle of selecting the good ones to ensure quality and rather leaving quota unfilled than filling with unqualified ones; and on strengthening the evaluation of political and academic qualities of

candidate students. On the basis of statistical analysis on the scores of this year's entrance examination, the meeting discussed and passed the basic requirements for the candidate student's being able to sign up for retest, and scheduled and arranged the objectives for this year's admission stage.

The basic situations of the 1986 national graduate students entrance examination were discussed and analyzed in this meeting, and the basic requirements for retest and admission were proposed; the specific measures for large area admission coordination center and large area admission evaluation unit's objectives were finalized; and problems such as trial operation as to how to further conduct well the recommending of outstanding graduating students to be admitted without testing, etc. were also discussed.

In the closing ceremony, Comrade Zhu Kaixuan presented several comments on the admission process of this year. He said that, based on current actual situation of our country, it was appropriate to require a minimum standard and basic requirement with specific flexibility for admitting graduate students this year. We have such a vast country and it is only natural that the academic levels of enrolling graduate students are unbalanced, but they should all comply with a minimum standard and basic requirement in order to ensure the required specification for a cultivation layer like graduate students. When mentioning the problem of overall control and school's sovereign authority, Zhu Kaixuan pointed out that overall control of quality is to abide by the minimum standard and basic requirement for admission and that overall control of quantity is not to break the preset planning index number. He also stressed that heavy emphasis should be placed on the evaluation of candidate student's political quality during the admission process and concentrate on conducting evaluation in the three areas of political performance, political viewpoint and basic level in political theory. There must be extensive investigation in order to fully understand, and those candidate students who do not meet admission requirement should be rejected.

Those who participated in this meeting were comrades, who are responsible for admission operations, from admission offices of 28 provinces, autonomous regions and directly-affiliated cities and part of the schools and institutes.

BRIEF DISCUSSION ON THE THREE BASIC CONDITIONS FOR DEVELOPING  
ORDINARY ADVANCED EDUCATION

Wang Wenyou

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Numerous conditions are required for developing ordinary advanced education, and the source of student, faculty and material guarantee are the three basic conditions. This paper conducts specific analysis, based on the history, current status and the outlook of the needs of socialist modernization construction of our country, on the above-mentioned three basic conditions and conducts comparison with the countries of the world with more developed advanced education. It is believed that currently the three basic conditions of our country are unbalanced. The source of students for advanced education of our country is bountiful; although faculty forces show potential, they can not be simplistically compared with those of other countries and the situation of possible faculty shortage in the 90's of this century must be noted; material condition required for operating schools is the weak point among the three basic conditions, and the serious shortage in school buildings is the weak point among weak points. We must start from the actual situations of our country to correspondingly lower, based on possible growth in infrastructure construction investment and undertaking fundings, the rate of development of ordinary advanced educational undertakings.

Currently, the scale of ordinary advanced education of our country is rather small and is extremely incompatible to the need of talents for socialist modernization construction. How to accelerate development has become a major issue that concerns various sectors. Many people have proposed numerous comments and suggestions.

To develop ordinary advanced education requires many important conditions, e.g. guidance from the party, leadership of the school, faculty, teaching material, books and information, source of students, school buildings, equipment, fundings, etc. Here analyses and construction are only conducted on the three basic conditions of source of students, faculty and material guarantee.

It is necessary to possess the above-mentioned three basic conditions in order to develop ordinary advanced education and maintain these three basic conditions at a minimum overall balance. If we only start from one or two conditions and blindly develop without considering whether the rest of the conditions are being taken care of, then we will be in a passive position and can not reach the goal of producing more talents and producing good talents. In reminiscence of the history over the past 36 years, there not only had been situations of insufficient source of students and shortage of faculty but also had been difficulties of inadequate school buildings and fundings. These had all caused adverse effects to developing number and upgrading quality. We should learn from the lesson of past experiences and try to perform overall balancing of these three basic conditions well so that the ordinary advanced educational undertakings can be developed actively and steadily.

## I. Source of Students

The source of students for schools of ordinary advanced education primarily comes from graduates of regular high school. To operate ordinary advanced schools well requires a specific percentage of regular high school graduates to assure a source of students. The number of regular high school graduates and number of admission into ordinary

advanced schools over the years since the establishment of the People's Republic are as shown in Table 1.

Table 1.

1) 年份	(3) 高中毕	(4) 高等学校	(5) 高中毕业与高 业生万人 招生万人 读招生之比
1949 年(2)	6.14	3.06	2.01
1950 年(2)	6.22	5.83	1.07
1951 年(2)	5.88	5.17	1.14
1952 年(2)	3.60	7.30	0.48
1953 年(2)	5.62	8.15	0.69
1954 年(2)	6.79	9.23	0.74
1955 年(2)	9.90	9.78	1.01
1956 年(2)	15.36	18.46	0.83
1957 年(2)	18.71	10.56	1.77
1958 年(2)	19.74	26.56	0.74
1959 年(2)	29.97	27.41	1.09
1960 年(2)	28.83	32.32	0.89
1961 年(2)	37.94	16.90	2.24
1962 年(2)	41.15	10.68	4.13
1963 年(2)	33.30	13.28	3.28
1964 年(2)	39.68	14.70	2.50
1965 年(2)	36.04	16.42	2.19
1966 年(2)	23.01		
1967 年(2)	26.82		
1968 年(2)	29.38		
1969 年(2)	38.02		
1970 年(2)	37.58		
1971 年(2)	100.44	4.24	23.69
1972 年(2)	215.91	13.36	16.15
1973 年(2)	349.44	15.00	23.30
1974 年(2)	417.89	16.51	25.31
1975 年(2)	447.03	19.08	23.43
1976 年(2)	517.22	21.78	23.84
1977 年(2)	585.83	27.80	21.46
1978 年(2)	682.69	40.15	17.00
1979 年(2)	728.54	27.81	26.41
1980 年(2)	616.15	28.13	21.91
1981 年(2)	486.12	27.88	17.44
1982 年(2)	10.57	21.81	0.86
1983 年(2)	235.00	39.00	6.02
1984 年(2)	339.84	47.62	7.00

Key: (1) Year; (2) The year of; (3) Ten thousand high school graduates; (4) Ten thousand students admitted into advanced schools; (5) Ratio of high school graduates to number of admission into advanced schools.

During the 12 years from 1949 to 1960, the development of advanced education had been quite fast and there had been two situations of sharp rise and sharp decline in the number of annual admission. However, during the same period, the development of regular high school had been rather slow and also more stable, but it had been unable to provide a sufficient source of students for ordinary advanced schools. During these 12 years, there were 6 years when the number of regular high school graduates had been lower than the number of admission into ordinary advanced schools; among which the ratio of regular high school graduates to the number of admission into ordinary advanced schools for 1952 was only 0.46:1 and was the lowest since the establishment of the People's Republic. Under such circumstances, we had to encourage working and social young men to take the entrance examination of ordinary advanced schools in order to admit enough students for the ordinary advanced schools. Although the number of regular high school graduates were all higher than the number of admission into ordinary advanced schools for the remaining 6 years, the ratio of regular high school graduates to the number of admission into ordinary advanced schools were, except for 1949 and 1957 when the ratio reached 2.01:1 and 1.77:1 respectively, just over 1:1 for the other 4 years. Under those circumstances, since there was no guarantee of a source of students for the ordinary advanced schools, it was impossible to develop at a higher speed even if we wanted to. Moreover, since the number of students who signed up for the entrance examination was less, [the] admission quota tended to be higher (very high percentage of admission), and when the standards are lowered it is difficult to guarantee that all new students admitted have higher quality. This is very detrimental to upgrading the academic quality of ordinary advanced schools. During the 5 years from 1961 to 1965 the situations had been somewhat improved. There were three years when the ratio of the number of regular high school graduates to the number of admission into ordinary advanced schools were higher than 2:1; it had been 3.26:1 for one year and 4.13:1 for another year. Thus, there had been larger room for selection for ordinary advanced schools to admit new students.

During the "Cultural Revolution" a large number of colleges were shut down, and regular high schools lowered their quality to develop blindly thereby causing a single unreasonable situation in the structure of secondary education. During the long 13 years continuing from 1967 to 1979, the number of students admitted into regular high schools had taken up 93% to 99% in the number of admission in high-school level each year, causing regular high school graduates to reach as high as 4 million to 7 million each year from 1974 to 1981. During the 5 years after the restoration of national joint entrance examination for ordinary advanced schools in 1977 to 1981, 200 to 300 thousand new students were admitted each year out of 3 to 4 million, even 5 to 6 million candidate students; the percentage of regular high school graduates advancing into ordinary advanced schools to study is only 3.79% to 5.88% each year, thus it can be said that there is an abundant source of students for ordinary advanced schools. However, this situation of tremendous amount of regular high school graduates all signing up for entrance examination of ordinary advanced schools like "one thousand troops and ten thousand horses fighting to cross a one-lane bridge", which is caused by the single structure of secondary education is not only not the necessary method for cultivating specialized talents but is also not required for the development of national economy, and meanwhile this has caused anxiety in various sectors.

In the reform of secondary education in recent years, the scale of regular high school has been gradually compressed through adjustment and portions of regular high school have been transformed into vocational and technical education. Currently, the number of annual regular high school graduates has dropped to around 2 million, and the ratio to the number of admission into ordinary advanced schools has dropped to around 5:1. Comparing with early 60's, this ratio is still quite high. From now on, as the scale of admission into ordinary advanced schools continues to expand, we need to note that the scale of regular high schools be maintained correspondingly. Generally, it is better to maintain the ratio of number of annual regular high school graduates to the number of admission into ordinary advanced schools for

that year at 3:1. Thus, the ordinary advanced school not only has more sufficient sources of students but can also have a prescribed leeway for admitting superior ones to ensure quality of enrolling new students.

## II. Faculty

There were 1.85~~34~~ million variously enrolled students in the ordinary advanced schools of our country in 1984 (among which 47.9 thousand are graduate students, 1.3957 million are students with majors, 44.0 thousand are students for short-term trainings, 3.4 thousand are preparation program students, 3.1 thousand are foreign students and 75.5 thousand are night-school students), and there were 315.0 thousand full-time teachers. The ratio of teachers to students is 1:5.88. This teacher-to-student ratio is higher than the 1:8.88 of Great Britain (1979 generalized university), the 1:8.61 of West Germany (1979), and much higher than the 1:18.16 of Japan (1980), the 1:16.40 of the U.S. (1978), the 1:13.30 of the Soviet Union (1979). This teacher-to-student ratio is also higher than the 1:6.29 of the first five-year planning period when development situations of our country were more normal. It can be said that there is specific potential in the faculty area of ordinary advanced schools of our country. If teacher-to-student ratio can be roughly lowered through measures, then the number of admission can be increased and the scale of student body expanded under the condition of not increasing or increasing a few teachers. However, exactly how great a potential the current faculty can have must be specifically analyzed, taking into account the different situations between our country and other countries; it is better not to make a hasty judgment just by simple comparison. The factors that cause the teacher-to-student ratio of ordinary advanced schools of our country to be higher than those of other countries, I believe, are primarily due to the following areas.

1. Difference in composition of enrolled students. Presently, the percentages of graduate students and students with majors in the student

body of ordinary advanced schools of our country are quite large, whereas the percentages of correspondence students, night-school students, nondegreeed students, short-term training students, foreign students, etc. are rather small. Among the 1.4149 million enrolled students of ordinary advanced schools in 1980, 1.1614 million were graduate students and students with majors, which took up 82.09% of the total number; 253.5 thousand were correspondence students, night school students, nondegreeed students, short-term training students, foreign students, etc., which took up 17.91% of the total number. There were only 202.4 thousand correspondence students and night school students, who take up less of the time of teachers, and were only 14.31% of the total number. By 1984, the enrolled students reached 1.8534 million, among which only 319.1 thousand were correspondence students and night school students and they only took up 17.22% of the total number. Whereas the total numbers of enrolled students in advanced schools of countries such as the U.S., Soviet Union, etc. all include significant number of part-time students. For example, among the 12.358 million enrolled college students of the U.S. in 1982 full-time students only occupied 58.3%; part-time students who attend less hours of classes occupied 41.7%. Among the 5.284 million enrolled students in advanced schools of the Soviet Union in 1981, 3.011 million were day-time students, which took up 57%; 2.273 million were night school and correspondence students, which took up 43%.

Since the percentages taken up by correspondence students, night-school students and part-time students in the total enrolled students of advanced schools in countries such as the U.S. and Soviet Union, etc. are quite large, and yet the teacher's attentions required by these students are much less than those required by full-time students; therefore, the teacher-to-student ratio can be lowered. The percentages of correspondence students, night school students and part-time students in the total enrolled students of advanced schools in our country are very small; therefore, the teacher-to-student ratio should be higher. Moreover, when computing teacher-to-student ratio, countries such as

the U.S., Soviet Union, etc. adopt total number of students, including full-time majors and graduate students and also including correspondence students, night school students and part-time students. Whereas when computing teacher-to-student ratio in our country, we usually only include students with majors and graduate students and do not include the number of correspondence students, night school students, nondegreed students, short-term training students, foreign students, etc.; sometimes the number of graduate students is not even included, thus the teacher-to-student ratio is on the high side. For example, there were 315.0 thousand full-time teachers in the ordinary advanced schools of our country, and if only the 1.3957 million students with majors are computed, then the teacher-to-student ratio is 1:4.43; whereas using the 1.8534 million total number of enrolled students to compute, then it should drop to 1:5.88.

2. Difference in composition of the ranks of teachers. First of all, the teachers at ordinary advanced schools are basically all full-time teachers with very few part-time teachers. For instance, number of part-time teachers is only equivalent to 4.26% of the number of full-time teachers in 1980, whereas the numbers of part-time teachers in some of the countries are very large. For example, there were 496 thousand full-time teachers and 350.0 thousand part-time teachers in advanced schools of the U.S. in 1980; the latter is equivalent to 70.56% of the former. There were 107.4 thousand full-time teachers and 70.7 thousand part-time teachers in universities of Japan in 1982; the latter is equivalent to 65.83% of the former. There were, however, 16.9 thousand full-time teachers and 24.7 thousand part-time teachers in short-term universities; the latter is equivalent to 146.15% of the former. Of course, the amount of teaching work every part-time teacher is responsible for is generally much smaller than the work of full-time teachers. But, if only the number of full-time teachers is counted when computing teacher-to-student ratio and not counting the number of part-time teachers, then the true situation can not be reflected.

Secondly, the teachers in ordinary advanced schools of our country

include the four titles of professor, associate professor, instructor and teaching assistant. Among the 315.0 thousand total number of teachers in 1984 were 113.9 thousand teaching assistants, which took up a percentage in total number of teachers as high as 36.17%. Whereas there are no such position as teaching assistant among teachers of advanced schools in countries such as Great Britain, the U.S., etc.; work such as assisting students, answering questions, etc. are all served by graduate students, nondegreed students or senior class students. Therefore, those with teaching assistants will have a higher teacher-to-student ratio; those without teaching assistants will have a lower teacher-to-student ratio.

3. Difference in management system for teachers. The management of teachers at ordinary advanced schools of our country is weak, lacking a scientific system. We employ appointment system for teachers, and there lack more strict, scientific rules and evaluation method for the responsibility, duty, promotion, etc. for various levels of teachers. After the teacher is appointed, it becomes a life-time employment. The teacher can be responsible for more teaching work and also can be responsible for less teaching work, there even exists the situation of "professors do not teach", "instructors do not instruct". This has caused certain people with lower teaching level, less abilities, difficult-to-raise academic level and even those who are incompetent to teach still being able to remain in the ranks of teachers for life without being eliminated. Yet many countries implement and contract system for teachers of advanced schools and clearly stipulate the qualifications for various levels of teachers. Also, stringent standards and procedures are stipulated for reviewing applications and hiring to fill the position of various teachers; there are also more strict, scientific management and evaluation method of the responsibility, duty, promotion, etc. for various teachers. Those personnel who are incompetent to teach can be eliminated through termination of contract. Thus, the competency of the ranks of teachers can be maintained and all contracted teachers can display the effectiveness they supposedly possess.

4. Difference in operational quality of the ranks of teachers.

Considering the education background of teachers at ordinary advanced schools of our country, those with graduate degree backgrounds only took up 6.94% of all the teachers in 1984, those with college major backgrounds in their teaching fields took up a percentage as high as 78.68% and those with associate degree backgrounds also took up a hefty 12.20%. In addition, those who studied their majors for less than two years and those with even lower education background took up 2.18%. Since the degree system was not timely established after the establishment of the People's Republic (the "Degree Examples of the People's Republic of China (draft)" was promulgated as late as 1980), the number of teachers with higher degrees is rather small. There were only 1,203 teachers with Ph.D. degrees in 1984, which took up 0.38% of the total number of teachers; there were 9,865 teachers with Master's degrees, which took up 3.13%. Those with Ph.D. and Master's degrees together took up 3.51% of the total number of teachers. Further considering the composition of teacher's titles, professors only took up 1.41% of all the teachers in 1984, associate professors only took up 8.96%, instructors took up 43.38%, nontitled teachers took up 10.08%, and teaching assistants took up a whopping 36.17%. The percentages of professors and associate professors are not only lower than those of other developed countries but are also far below those during the early period of the establishment of our People's Republic (it was 43.25% in 1950). Although currently the evaluation work of teacher's title at ordinary advanced schools of our country has not been on track, the existing title of every teacher does not necessarily reflect their actual level; but the basic situation of too low percentages in professor and associate professor is not likely to change significantly in a short period of time.

In some of the countries with more developed advanced education, those with graduate degree backgrounds and who possess Ph.D., Master's degrees take up a very high percentage of the teachers at advanced schools. For example, among the teachers at advanced schools of the U.S. in 1972 40.8% possessed Ph.D. degrees, 44.9% possessed Master's

degrees, and the sum of the two took up 85.7%; whereas those with Bachelor's degrees only took up 4.9%, those with no degree or lower than Bachelor's degrees took up 1.3% and the remaining 8.1% was unknown. Generally a Master's degree is required when the U.S. community colleges hire teachers. Among the 238.8 thousand teachers of community colleges throughout the nation in 1980 75% possessed Master's degrees, 14% possessed Ph.D. degrees, and the sum of the two took up 89%. France has stipulated that: one of the qualifications required for serving as professor, instructor at advanced schools is the necessity of possessing a national Ph.D. degree. In Japan, among the teachers at advanced schools in 1981 42.6% had had graduate studies at Ph.D. or Master's levels, 49.6% graduated from university with majors in their teaching fields. In these countries, percentage of teachers with senior titles is also higher. For example, among the teachers at advanced schools throughout the nation in the U.S. in 1976 about 23% were professors, about 24% were associate professors, the sum of the two took up about 47%; about 27% were assistant professors, about 26% were instructors and others. In Japan, among the 124.3 thousand full-time teachers of universities and short-term universities throughout the country in 1982 33.83% were professors, 23.53% were associate professors, and the sum of the two took up 57.36%; 15.02% were instructors, 27.62% were teaching assistants.

So, currently there are great differences in operational quality between the ranks of teachers at advanced schools in our country and those in countries with more developed advanced education in the two areas of education background composition and title composition. It will certainly be reflected on teaching standard and teaching efficiency thereby affecting the teacher-to-student ratio.

5. Difference in social conditions. Teachers at advanced schools are high-level laborers of brain power; their working hours are not merely limited within the 8-hour, and they must also fully utilize the time beyond the 8-hour. Presently, since there exists the unreasonable situation of rather low wages for laborers of brain power in the wages

system of our country and plus the fact that the third enterprises of our country is very poorly developed, the vast teachers, especially those middle-aged teachers who are the backbone of teaching and research, are all burdened by heavy household chores. According to some investigations and statistics, the time every middle-aged teacher spends on household chores every day is at least three hours. Therefore, there is less time for the middle-aged teachers to conduct teaching and research related work beyond the 8-hour.

Whereas in many other countries, the wages of advanced school teachers are higher and the third enterprise is also well developed, thus teachers do not need to spend a lot of time on household chores. In some countries there is still the custom that married women do not work on jobs; therefore, male teachers who have wives to take care of household chores can have more time to do teaching and research related work.

In addition to the above-described five major differences, the scale of ordinary advanced schools of our country is smaller with more small-class teaching and less large-class teaching; the instruction-style teaching method and more nonprofessional work born by teachers, etc. are also factors that contribute to higher teacher-to-student ratio.

Currently, the teacher-to-student ratio of ordinary advanced schools in our country is very unbalanced; there are great differences between different regions, different schools and different departments, and it can be generalized. Take the ratio of teachers to students with majors in 1984 as an example; it was 1:5.66 for all normal colleges, 1:4.69 for general universities, 1:3.99 for science and engineering colleges, and yet it reached as high as 1:2.56 for language and literature colleges. Among normal colleges, the teacher-to-student ratio for Jiangxi Province was 1:7.02 and yet the teacher-to-student ratio reached as high as 1:3.88 for Xinjiang Uygur Autonomous Region. Even within the same school, there also existed significant differences in

the teacher-to-student ratios of basic courses, major courses and different departments. For example, the teacher-to-student ratio by department for a certain key advanced school in 1984 were computed (number of students only included undergraduate and graduate students of each department) and those for the Law Department and Computer Science Department were 1:9.23 and 1:8.88 respectively, whereas those for the Psychology Department and Russian Language Department reached as high as 1:3.12 and 1:1.10. For the unbalanced situation in faculty strength between regions and between colleges, measures of policy can be adopted to promote reasonable movement of talents for tapping potentials; whereas the unbalanced situations in faculty strength between disciplines and between specializations can not be adjusted by crossing over field of specialization.

The above analyses indicate that we should start from the actuality of China to realistically conduct specific analysis and estimation for the faculty potential of ordinary advanced schools in our country; and concentrate on the existing unreasonable situations and adopt measures to reform. Some people say that the faculty of ordinary advanced schools in our country has great potential and the student body can be easily expanded by one-fold without increasing teachers. I believe this estimation is impractical.

In order to maintain continued, stable development for advanced education, even though current faculty has specific potential, there is still need for constantly replenishing young teachers. During the 6 years from 1978 to 1984, the number of enrolled students in ordinary advanced schools increased from 864.7 thousand to 1.8534 million, a growth of 114.34% with an annual average growth rate of 13.55%. During the same period, number of full-time teachers increased from 206.3 thousand to 310.5 thousand, a growth of 52.69% with an annual average growth rate of 7.31%. The growth rate of teacher was greatly lower than the growth rate of enrolled students and teacher-to-student ratio dropped from 1:4.19 to 1:5.88. This unsynchronized growth situation can not be continued for long. From now on, when teacher-to-student ratio

is lowered to a specific limit the growth of teachers and enrolled students must be made synchronized.

It is worth noticing that, due to historical reasons, the age composition of current ranks of teachers of ordinary advanced schools is in a very abnormal situation of small on the two ends and large in the middle.

According to statistics of October 1983, its age-section distributions are as follows:

21-25-year-old	22,882 people	at 7.52%
26-35-year-old	6,143 people	at 21.40%
36-45-year-old	70,529 people	at 23.17%
46-55-year-old	114,709 people	at 37.69%
56-65-year-old	25,419 people	at 8.35%
66-75-year-old	5,677 people	at 1.87%

During the 17 years from 1984 to 2000 the 140 thousand teachers who are above 46-year-old will take turn to reach retiring age. Some of the middle-aged teachers may have to leave their posts early due to poor health. By that time only 160 thousand-odd existing teachers will have remained. If enrolled students reach 5 million by the end of this century, and using a teacher-to-student ratio of 1:8 for computation, then it requires 625.0 thousand teachers at that time. In addition to the 160 thousand-odd remaining teachers, it requires an increase of about 460 thousand teachers from 1984 to 2000, averaging a required annual increase of 27.0 thousand-odd teachers, yet during the 6 years from 1979 to 1984 there were a total increase of 108.8 thousand teachers, averaging only an increase of 18.1 thousand teachers each year. Therefore, the rate of increase in teachers needs to be raised properly from now on in order to avoid difficulty of faculty shortage in latter part of the 90's.

### III. Material Guarantee

According to the stipulation of existing planned management system

of our country, the material requirements needed by ordinary advanced schools can be classified into two large groups. One group belongs to the investment portion of infrastructure construction, including land, school buildings and facilities with single-item cost above 50 thousand Renminbi dollars. The other group belongs to the undertaking funding portion, including wages, assistantships(scholarships), library information, facilities with single-item cost below 50 thousand Renminbi dollars and attritional expenditures, etc. It is impossible to set up and operate schools well without guarantee of these material conditions.

Since for a long time in the past the country was guided by erroneous "leftist" thoughts and under the influence of erroneous viewpoints of taking education lightly and discriminating intellectuals, the investment in educational infrastructure construction and undertaking fundings appropriated by the government were far below those required for the development of educational undertakings. For a long time there existed many difficulties for ordinary advanced schools in the area of material requirements. After the crackdown of the "Gang of Four", and since the Third Meeting of the Eleventh Central Committee Plenary of the party, the party's Central Committee and State Affairs Yuan have stressed and pointed out on numerous occasions about the important position and effects of educational undertakings in the national economy; the Twelfth Party Convention has made the decision to place educational undertakings as one of the strategic key points for the development of national economy and will gradually increase investment and fundings for education. In recent years, the state has significantly increased the investment in educational infrastructure construction and undertaking fundings, and the infrastructure construction investment and undertaking fundings of ordinary advanced schools have all been greatly increased. Except for certain individual years, the annual percentages of growth in investment in infrastructure construction and undertaking fundings have all been respectively higher than those of total investment in national infrastructure construction and total national financial outlay (see Table 2, Table 3). However, it should also be noted that the growths in infrastructure construction

investment and undertaking fundings still lag behind developmental needs; the residual problems caused by insufficient educational investment and undertaking fundings in the past have still not been completely resolved hitherto. This is still the outstanding difficulty in the further development of ordinary advanced schools.

Table 2:

(7) 投资单位:亿元

(1) 年份	(2) 全国基本建设投资总额				(8) 全国普通高等学校投资			
	(3) 总计		(6) 其中: 国家预算内投资		(3) 合计		(6) 其中: 国家预算内投资	
	(4) 绝对数	(5) 比上年增长%	(4) 绝对数	(5) 比上年增长%	(4) 绝对数	(5) 比上年增长%	(4) 绝对数	(5) 比上年增长%
1976	376.44	-8.43	310.93	-7.35	1.10	-3.38	1.06	-1.64
1977	382.37	1.58	312.35	0.46	1.15	4.55	1.11	4.72
1978	500.90	31.02	417.37	33.62	3.34	190.43	3.17	185.59
1979	523.48	4.49	418.57	0.29	6.34	104.79	6.38	101.26
1980	558.89	6.76	349.27	-16.56	9.00	31.58	8.05	26.13
1981	442.91	-20.73	251.56	-27.98	9.82	9.11	8.65	7.45
1982	555.53	25.43	276.67	9.98	10.58	7.74	9.70	12.14
1983	594.13	6.95	345.76	24.97	13.93	31.66	13.49	39.07
1984	743.00	25.06	403.95	16.83	17.92	28.64	16.67	23.57

Key: (1) Year; (2) Total investment in national infrastructure construction; (3) Total; (4) Absolute number; (5) Growth % over last year; (6) Among which: investment within national budget; (7) Investment unit: 100 million Renminbi dollars; (8) National investment in ordinary advanced schools.

Table 3:

年份	(2) 国家财政总支出		(5) 高等教育事业费支出		(6) 在校学生数	
	(3) 绝对数	(4) 比上年增长%	(3) 绝对数	(4) 比上年增长%	(3) 绝对数	(4) 比上年增长%
	(7) (亿元)	(7)	(7) (亿元)	(7)	(8) (万人)	(8)
1976	806.20	-1.79	8.03	12.15	56.47	12.72
1977	843.53	4.63	8.25	2.86	62.53	10.73
1978	1,110.95	31.70	11.63	40.80	86.47	32.28
1979	1,273.94	14.67	16.40	41.01	106.24	22.86
1980	1,212.73	-4.80	19.13	16.65	141.49	33.17
1981	1,114.97	-8.06	22.28	16.47	157.35	11.22
1982	1,153.31	3.44	23.86	7.09	143.89	-8.56
1983	1,292.45	12.06	27.49	15.21	158.85	10.39
1984			32.73	19.06	185.34	16.68

Key: (1) Year; (2) National total financial outlay; (3) Absolute number (100 million Renminbi dollars); (4) Growth % over last year; (5) Outlay of advanced educational undertakings; (6) Number of enrolled students; (7) 100 Million Yuans; (8) 10 Thousand People.

The primary content of investment in infrastructure construction entails the construction of school buildings. Since the establishment of the People's Republic, the ordinary advanced schools have been in a developing period, yet the construction of school buildings has always lagged behind the growth of enrolled students causing the schools to be chronically in an anxious state of serious shortage in school buildings. The reason which had caused this situation lies at the serious dislocation of investment planning for infrastructure construction from the actual needs of ordinary advanced schools. On the one hand, when we were setting annual investment plan for ordinary advanced schools we have always been tabulating according to the growth in enrolled students and have never given basic satisfaction according to actual needs of school stemmed from increase in students. During developing periods of national economy education and other cultural undertakings have often been asked to overcome difficulties and make way for key developments such as industrial construction, resulting in little or no increase in educational investment; whereas during difficult periods of national economy and when the scale of infrastructure construction is adjusted and compressed, investments in education and other cultural undertakings have always been the first ones to be cut. During the 50's and early 60's, there already existed serious difficulty of insufficient school buildings at ordinary advanced schools. During the "Cultural Revolution", there was very little investment appropriated by the state for ordinary advanced schools and very few school buildings were added; meanwhile, there were incidents of large number of school buildings being taken over by other units and up until today about 1.40 million square meters have still not been returned. After the crackdown of the "Gang of Four" ordinary advanced schools have been expanding the scale of admission year after year and by 1984 the number of enrolled students has reached 1.5344 million (not including correspondence students and

night school students), which is an increase of 833.8 thousand students over the 700.6 thousand students of 1965. Although the state has significantly increased the investment in infrastructure construction of ordinary advanced schools --a total of 7.368 billion Renminbi dollars in investment has been completed during the 9 years from 1976 to 1984, the growth of infrastructure construction investment still lags behind the needs of undertaking development. The investment appropriated by the state at the most is only equivalent to 70% of the investment required to meet the actual needs of increase in enrolled students. Therefore, the difficulty of serious shortage in school buildings has still not been resolved. Over the years, whether it is the construction of industry, transportation items or business, service, administration, scientific research, culture, sanitation items, etc., it has always been appropriated sufficient investment and then put to use after completion. Only the construction of school buildings suffers from insufficient investment appropriation and regardless of whether they can be completed in time or not, they must accommodate new student in September of that year. On the other hand, since the fiscal investment planning for infrastructure construction of ordinary advanced schools is tabulated according to the increase in number of enrolled students of that year, this has created the passive situation of setting investment planning during one year, designing during the same year, starting up during the same year, completing during the same year and putting to use during the same year. Moreover, since the school-year of schools starts in early September of each year, the corresponding increase of new school buildings for the increase in enrolled students at the beginning of the next school-year should be completed by the end of July of that year at the latest, leaving one month's time to work on arrangement and setup so that they can be put to normal use in early September. Therefore, after the fiscal investment planning is set to just in time for use in early September when school starts there are at most only 7 months for actual construction work; for those schools that are located in the north the remaining time for construction work is even less due to bitter cold winter season. Under normal condition, it is very difficult to complete the badly needed school buildings within

a few months; especially, some of the buildings for teaching use are bulky and their technical requirements are more complex; they usually require two to three year's time for construction work and it is impossible to complete in a few short months. This would definitely cause the passive situation where the required school buildings for increased students can not be completed on time when school starts in early September. A lot of the school buildings construction arranged for the year must wait until the second or third year before they can be completed for use; and the students increased in that year can only be accommodated through temporary make-shift measures year-after-year. In recent years the state has adopted the measure of pre-appropriating part of the investment for next fiscal year 6 months earlier each year, thus contributing active effects for changing the passive situation of "four during-the-same-year". But since the time when pre-appropriated investment is set is rather late each year, the actual investment pre-appropriated is quite small and the results are not very distinct.

This situation of dislocation of infrastructure construction investment planning from actual needs of ordinary advanced school, except for a few colleges affiliated with industrial ministry, is still basically unchanged at the majority of advanced schools as of today. Even though there have been greater increases in investment appropriation in recent years for many colleges affiliated with ministries and committees, the rate of growth in school buildings still lags behind the rate of growth in students and there still exists, to different extents, difficulty of insufficient school buildings. Situation of classroom shortage, crowded library, insufficient laboratory, especially the specialized laboratory, is very common. The crowded situation of student dormitory is even more conspicuous and common---at many colleges each student only averages about 250 square meters living space. Living quarters for faculty members at the majority of colleges are still far from being settled and there are one hundred-odd families of middle- and young-aged teachers who are still cramped in student dormitories at quite a few colleges. In recent years, some of the places have increased investment in ordinary advanced school each

years; but a lot of places still basically remain at the investment level of 1978 or with very little increase in investment, yet the number of enrolled students is constantly increasing at a large rate. For example, the enrolled students had increased by 8,000 some people in 1985 for the 29 colleges affiliated with a certain province and at least 104 million Renminbi dollars in investment was required for the increase in corresponding school buildings; but the actual investment appropriated was only 26.2 million Renminbi dollars, only equivalent to 25% of what was required. Not only problems carried over from the past can not be solved, even those new school buildings required to accommodate student increases for current year are also far from being basically satisfied. Year after year, old debts have not been paid up and yet new debts keep piling up. Therefore, there is basically no potential in school buildings of ordinary advanced schools, and except for extremely few colleges, school buildings at the majority of colleges are still in short supply.

In order to alleviate the contradiction between insufficient school building investment and development of advanced education, many people have proposed the suggestion of implementing commute-to-school system. Under current social conditions of our country this requires careful analysis as to within how big an area can commute-to-school system be implemented. Currently, the scale of advanced education in our country is rather small; ordinary advanced schools, especially those with higher teaching standard, are not distributed uniformly; many specialized fields only required that they be sparsely distributed on a national scale; also the complex factors such as unbalanced development in basic education and regular high school education in various areas have required that colleges affiliated with ministry and committee and a few local colleges with certain specialized fields admit students on a national scale or within a large area; local colleges basically are all admitting students from within the range of their own provinces, autonomous regions, directly-affiliated cities, or areas where they are located. It is impossible to ask all colleges to only admit students from areas where the colleges are

located; it is also unfair. The people's government has the responsibility to create equal opportunity for high school graduates of the vast villages and townships where no ordinary advanced schools are established thereby allowing qualified young people among them to be able to enter ordinary advanced schools for further study. Even for those cities already have ordinary advanced schools, high school graduates upon considering the needs of national construction and majors of personal preference and not wanting to sign up for majors offered by local colleges should also be permitted to pursue college study at colleges located in other cities. Therefore, it is inappropriate to limit admission areas for ordinary advanced schools if it is just for the reason of implementing commute-to-school system.

Although local colleges in cities admit students locally, due to reasons such as larger admission area, different selection of majors by students, underdeveloped transportation system, etc., there are still practical difficulties in implementing commute-to-school system. Take the City of Beijing for example, the admission areas for city-affiliated colleges include the city limit, outskirts areas and suburban counties. It is impossible for students who live in suburban counties to commute. For those who live within city limit or in the outskirts but are still quite a distance from the school, it is also impractical to commute to school if it will take them more than an hour to go to school by public transportation or by bicycle. Moreover, since advanced education is a professional education, it is different from basic education where going to nearby schools is feasible. For instance, some of the students who live near industrial universities do not want to study engineering majors and prefer to study law or study to become teacher at colleges very far from their homes. Therefore, there are difficulties to implement commute-to-school system for all students. As for the province- and autonomous regions-affiliated colleges, their admission areas are the entire province or a certain region, which are even bigger areas, and it is even more impossible to require all students to commute to school. Only those colleges located in large or medium city limits and with general majors which only admit students

living locally can commute-to-school be possibly implemented for all students.

To develop commute-to-school system under current conditions of our country, in addition to requiring that no dormitory be provided for students who live closer to school and are within one-hour commuting time one way, there are two areas we still need to work on. One is to settle the transportation problem for commuting students---either by improving city public transportation through coordination between municipal departments or by providing school buses by the school to take students to and from school at scheduled times in order to shorten student's time spent on the road. Within the limit of not exceeding one hour, the area of commute-to-school students can be expanded if the speed of bus is increased. Two is to build and manage student apartments by municipal departments near the schools to rent them to students who live far away; or to organize people who live near the schools and have extra rooms or beds to rent to students.

Ordinary advanced schools on the average require about 40 square meters school building area for each student who live on campus, which includes teaching administration buildings, student living quarters and faculty living quarters, etc. By implementing commute-to-school system, only 6 square meters of student dormitory area can be reduced corresponding to each commuting student; and furthermore, because commuting students will at least have to eat lunch at school, not even the mess hall area they require can be reduced. Other item's such as classrooms, laboratories, libraries, administration office building, faculty living quarters, etc., none can be reduced. Some people say that ordinary advanced schools with commute-to-school system only require about 15 square meters school building area for each student. This argument is unrealistic. Only those students who live closer to school commute, i.e. they neither live in school's dormitory nor live in the municipal department's student apartments, can investment of 6 square meters in student dormitory for each student be saved. If students who live farther or very far from schools also commute, although schools save the

investment of 6 square meters in student dormitory for each students, the municipal departments, however, at least need to appropriate corresponding investment for student apartments, and this does not conserve investment from the overall national standpoint; it is just that investment is being distributed to different channels. The advantage that comes with this is that the construction and management of student dormitory develop toward socialization. Therefore, overall social planning and arrangement are required if commute-to-school system is to be implemented. The situation of not appropriating sufficient educational investment and dumping the problem on the one hand and the situation where no one is responsible for the resulting problems such as improving transportation, building and managing student apartments, etc. which require assistance from municipal departments on the other hand must be prevented from happening.

In the area of fundings for undertakings, many problems are carried over from the past due to chronological funding shortage for advanced educational undertakings. During the "Cultural Revolution", school buildings, books and data, teaching and research equipment and general furniture at many colleges had been seriously damaged. Therefore, the funding for advanced educational undertakings must adapt to the needs of development on the one hand; it must gradually solve problems carried over from the past on the other hand. In recent years, although the state has greatly increased the funding for advanced educational undertakings, these needs have not been basically satisfied. It can be observed from Table 3 that since 1976, except for a decrease from previous year by 8.56% in enrolled students for 1982, there have been greater growth for all the remaining eight years. Such a high growth rate requires that the funding for undertakings have greater corresponding increase. But during these nine years, the growth in undertaking fundings for three of the years were still below the growth in enrolled students for those years. For example, in 1980 the enrolled students increased by 33.17% over the previous year and yet fundings only increased by 16.65%. There were four years during which the growth in undertaking fundings were only slightly higher than the growth in enrolled students, and if the

factor for pricing adjustment is deducted, actual growth in funding is even less. There were only two years during which the growth in undertaking fundings were significantly higher than the growth in enrolled students. Therefore, difficulty in undertaking fundings for ordinary advanced schools is still an existing problem.

The average annual undertaking funding expenditures for each student of ordinary advanced schools in recent years have been significantly increased over those before the "Cultural Revolution". But since the composition and contents of various expenditures in undertaking fundings have changed greatly, coupled with the factor of pricing adjustment, such increases still can not adapt to the needs of undertaking development. According to typical investigations and analyses of the six colleges affiliated with Planning Section of the National Education Committee, the growth situation in various expenditures are as shown in Table 4. The average annual undertaking funding expenditures for each student at these six colleges were 866.47 Renminbi dollars from 1963 to 1965; 2,000.65 Renminbi dollars from 1981 to 1983. The latter has increased 1,134.18 Renminbi dollars over the former, a growth of 130.90%.

Table 4:

(19) 单位: 元

(1) 项 目	(15) 1963—1965年平 均每生每年支出 事业经费	(16) 1981—1983年平 均每生每年支出 事业经费	(17) 后三年比前三年 增长绝对数	(18) 后三年比前三年 增长率 %	(20) 后三年比前三年 增长构成百分比 %
(2) 总 计	866.47	2,000.65	1,134.18	130.90	100.00
(3) 一、人员经费	472.63	848.65	376.02	79.56	85.15
(4) 工 资	324.92	558.35	233.43	71.84	20.58
(5) 辅助工资	3.85	64.74	80.89	2,101.04	7.13
(6) 职工福利费	18.95	50.38	31.43	-165.86	2.77
(7) 人民助学金	122.69	145.79	23.10	18.83	2.04
(8) 差额补助费	2.22	9.39	7.17	322.97	0.63
(9) 二、公用经费	393.84	1,152.00	758.16	192.51	66.85
(10) 公务费	84.60	172.31	87.71	103.68	7.73
(11) 设备费	134.42	480.13	345.71	257.19	30.48
(12) 营业费	54.47	207.91	153.44	281.70	13.53
(13) 业务费	107.97	210.09	102.12	94.58	9.01
(14) 其他费用	12.38	81.55	69.18	558.80	6.10

Key: (1) Item; (2) Total; (3) 1. Personnel fundings; (4) Wages; (5) Subsidized wages; (6) Faculty bonuses; (7) People's scholarships; (8) Subsidy for differences; (9) 2. Public fundings; (10) Official business expenses; (11) Equipment expenses; (12) Repairs expenses; (13) Operational expenses; (14) Other expenses; (15) 1963-1965 average annual undertaking funding expenditures for each student; (16) 1981-1983 average annual undertaking funding expenditure for each student; (17) Growth in absolute number of the latter 3-year over the former 3-year; (18) Growth rate of the latter 3-year over the former 3-year; (19) Unit: Renminbi dollar; (20) Growth in composition percentage of the latter 3-year over the former 3-year.

Among the total amount of this increase, personnel fundings (including wages, subsidized wages, bonuses, scholarships, subsidy for differences) increased by 79.56%; whereas public fundings (including official business expenses, equipment expenses, repair expenses, operational expenses, other expenses) increased by 192.51%. The absolute amount and growth percentage of public fundings were both twice as high as those of personnel fundings. Among the total amount of increase, personnel fundings only took up 33.15; whereas public funding took up 66.85%. And yet the percentage of personnel fundings in total undertaking fundings had dropped from 54.55% to 42.42%. Among the amount increased for personnel fundings, funding increase due to increase in scientific research organizations and expansion of undertaking range was about 23%; increase in funding for new expenditures added in recent years, which did not exist in the past, such as subsidy for pricing adjustment of supplemental food items, subsidy for staple food and coal, fundings for terminated and retired personnel, subsidy for health care of single child, subsidy for travel expenses of visitation of married faculty, etc. was about 34%; increase in funding due to raising of expenditure standard was about 10%; increase in funding due to overstaffing was about 33%. Therefore, funding increase due to overstaffing only took up 10.94% of the total amount of increase. Due to historical reasons, currently overstaffing situations do exist in many colleges; but we can not blame funding difficulty of ordinary advanced schools on overstaffing's eating up all the funding just because of that.

Equipment expense is the one which increased the most among public

funding, it increased by 257.19%. This is due to significant upgrading of teaching equipment level over that of the past at various colleges in recent years. In the past, the levels of teaching and research laboratory equipments and facilities at ordinary advanced schools were very low with single-item of equipment costing just a few hundred or a few thousand Renminbi dollars and very few exceeding ten thousand Renminbi dollars. During those days only a few national key colleges were equipped with low-performance electronic microscopes and extremely few schools had manufactured first-generation and second-generation computers on their own. In recent years, especially since the implementation of open policy, various colleges have gradually established connection with foreign countries and have realized the distance between advanced education of our country and those of other countries. While eliminating damages caused by the "Cultural Revolution", various colleges have also combined with education reform to continuously replace and purchase teaching and research equipment. Many equipment such as oscilloscope, strain gauge, vacuum film-coating machine, which were only for the use of a few departmental laboratories in the past, are now available for extensive use by many departments. A lot of the low-performance teaching and research equipment used in the past such as various spectrograph instruments, microscopes, etc. have now been gradually replaced by high-performance, advanced equipments. Many equipment that have never been used before such as analytical measurement instrument, computer, language laboratory equipment, audio-video recording equipment, microphotography equipment, copying machine, etc. have now also been extensively used. The single-item price for these instruments and equipment runs into ten, twenty thousand Renminbi dollars at a minimum, some run as high as one hundred-odd thousand to several hundred thousand Renminbi dollars and some even over one million Renminbi dollars. Thus, equipment expense needs to have greater increases. Also due to conditions such as constant temperature, constant humidity, dust control, fire protection, etc. required for many of the instruments and equipment, there requires retrofitting of laboratories to install supplemental equipment like air conditioners,

dehumidifiers, etc. and corresponding increase in repairs and operational expenses. In addition, due to factors such as increased teaching experiment, increased international exchanges, upgraded expenditure standards, pricing adjustment, etc. operational and other expenses have also increased, to different degrees, expenditures.

Fundings for undertakings are increasing by the year thus improving operational conditions of various colleges. However, the equipment levels of laboratories at existing ordinary advanced schools still do not meet the requirements of teaching plans. Colleges affiliated with the National Education Committee have better conditions, and the average offering rate for basic experiment courses has reached around 90%; the laboratories for specialized experiment courses are still in the buildup process and the offering rate for experiment is only about 70%. Yet at many local colleges, especially those newly established colleges, the offering rates of basic and specialized experiment courses are far from reaching these levels. Whether in natural science domains or social science domains, ordinary advanced schools have the advantages of possessing complete disciplines, strong potentials and higher standards, and they are an important area force of scientific research; various colleges must also upgrade academic level and teaching quality of teachers through continuously conducting scientific researches. But for a long time there have been very little fundings for scientific research undertakings and this has caused various colleges not being able to fully display their potentials of taking on scientific research duties. Moreover, the wages for teachers are still on the low side. These are all some of the current major difficulties in undertaking fundings at ordinary advanced schools. Therefore, it is fair to say that the area of undertaking fundings is still not in line with the needs of undertaking development.

#### IV. Comments

It can be observed from the above-described analyses that: currently the three basic conditions for operating school at ordinary

advanced schools of our country are unbalanced. The source of students is quite bountiful. Although faculty forces presently have some potentials, there is possibly situation of faculty shortage in the 90's if measures are not adopted. There exist numerous actual difficulties in the material condition required for operating school and it is the weak point among the three basic conditions; especially, serious shortage in school buildings is the weak point among weak points and has become the major obstacle for further development and upgrading of ordinary advanced schools. Therefore, the rate of development of ordinary advanced schools in our country currently is not determined by whether source of students is abundant or whether faculty forces have potential but primarily by growth rate of school buildings, that is to say that it is determined by the amount of investment for infrastructure construction of ordinary advanced schools appropriated by the state.

The duty of advanced education is to cultivate various specialized senior talents for the construction of the four modernizations and promote the development of national economy; at the same time the development of advanced education is certainly limited by the material conditions national economy is capable of providing. Therefore, when studying to determine the scale and rate of development of ordinary advanced schools, we must adapt as much as possible to the needs for specialized talents by the construction of the four modernizations on the one hand; we must also consider the material conditions such as infrastructure construction investment and undertaking fundings, etc. national economy is capable of providing for ordinary advanced schools. And also the two aspects need to be unified to achieve synchronized growth according to proportion between undertaking development and infrastructure construction investment and undertaking fundings. If the material conditions national economy is capable of providing for ordinary advanced schools can not be significantly increased, then the rate of undertaking development should be lowered correspondingly according to the possible growth of infrastructure construction investment and undertaking fundings.

The rapidly developing joint-venture of operating schools and consigned talent cultivation is a new path for the development of ordinary advanced schools. In addition to the admission plans assigned by the state, infrastructure construction investment and undertaking fundings are appriated by the employing units; admission into ordinary advanced schools is to be expanded and the faculty potential are to be tapped to cultivate specialized talents for the employing unit. Thus, the shortage in appropriation of infrastructure construction investment and undertaking fundings by the state can be supplemented, and more talents will be cultivated for the country. Since for many years the growth in infrastructure construction investment and undertaking fundings for ordinary advanced schools have lagged far behind the needs of undertaking development, this has caused difficulties in shortage of school building and insufficient fundings. Therefore, when ordinary advanced schools accept the duties of joint-venture of operating school and consigned talent cultivation, they should correspondingly collect the actually required infrastructure construction investment and undertaking fundings according to increase in number of students. Do not make the existing difficulties in shortage of school buildings and insufficient fundings even worse by collecting too little infrastructure construction investment and undertaking fundings.

Radio and television universities, correspondence university and night university, etc. are important forms of advanced education, and they can cultivate talents for the country just as well. The faculty, school buildings and fundings required for cultivating one student at these types of advanced schools are far less than those for ordinary advanced schools. Under the circumstances of the state's not being able to provide more infrastructure construction investment and undertaking fundings for advanced education, it has even more special significance to develop radio and television universities, correspondence university and night university, etc. in great numbers. These types of advanced schools, in addition to admitting employed personnel, should also admit regular high school graduating class students and unemployed

young intellectuals. Thus, wider road can be opened up for more young persons to receive advanced education and thereby reducing the pressure on ordinary advanced schools.

At present, the percentages of senior-level and middle-level personnel among professional personnel in our country are rather high, and situations of too many college graduates and too few vocational college graduates, too many engineers and too few technicians exist in many professions. A lot of the senior-level personnel are doing low-level professional work and even nonskilled work. There exists the phenomenon of simultaneous shortage and waste of professional personnel. Therefore, relatively speaking, the situation of shortage in middle-level professionals is more serious than the situation of shortage in senior-level professional personnel. However, the annual growth rate of admission into ordinary advanced schools in recent years is still higher than the growth rate of admission into vocational colleges. This is not beneficial to changing the structural ratio between senior-level and middle-level professional personnel. In the next few years the rate of development of ordinary advanced schools should be properly lowered to accelerate the development of vocational colleges and cultivate more middle-level professional personnel. Only this way can the structural ratio between senior-level and middle-level professional personnel be gradually adjusted and made more reasonable; and also can senior-level professionals fully display the effectiveness they supposedly possess.

ON THE IDEAS OF INVESTMENT AND SYSTEM REFORM FOR ADVANCED EDUCATION  
OF OUR COUNTRY

Zhang Xiaohe

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Recently, quite a few comrades have proposed their ideas on cultivation of talents with advanced education coupled with reimbursement. There are generally several schemes as follows: (1) the employing unit hires with reimbursement and implement the enterprise-pays-for-people-hired system; (2) levy income tax after the wages of people with advanced education are significantly upgraded; (3) replace the existing free advanced education through granting of advanced education loans, etc. The above-described schemes can expand the source of educational investment to a specific degree and is also conducive to further reform of education. But I believe that since these schemes do not accurately grasp the properties of educational investment return and characteristics of advanced education in our country, they are not likely to become the basic model for advanced education investment of our country from now on.

First of all, employing unit hires with reimbursement through the form of consignment or contract, and it is still feasible under the circumstances that currently the social educational organizations of our country are still not quite developed if it is just for those

students without taking the joint advanced examination or those recommended by villages or even individual families. But in order to ensure the educational quality of regular advanced schools, this form is not likely to take up a big percentage in the next ten, twenty years. Although the expenses for cultivating these talents are lower and they are just as important, it should still be conducted through channels of social education, including forms such as night university, television university, vocational college, correspondence class of advanced schools, etc. If enterprises are permitted to implement directional use with reimbursement among the portion of graduates distributed by unified admission but is over the plan, then two kinds of distribution methods are resulted for the same graduates due to different planning methods. Under the situation of planning's being not very scientific, this will affect normal competition among enterprises caused by inequality in terms of hiring of talents.

Secondly, if the enterprise-pays-for-people-hired system is implemented for all graduates from existing full-day, regular advanced schools, then in addition to the drawback of not being conducive to movement of talents it is also contradictory to the intent of investment themselves. The reason enterprise should pay for the talents it hires is primarily based on the premise that these talents can create more values than these reimbursement expenses for the enterprise. Imagine, if a graduate gives up his own field he has learned or can only perform simple, general work after he enters the enterprise and the greater work capabilities he possesses do not produce any effects, then why should enterprise commit reimbursement investment for him?

Thirdly, to adopt the method of first upgrading the work compensation of laborers with advanced education then collect individual income tax, although it is closer to the intent of reimbursement in theory, it is likely to be very difficult to implement as the basic model of educational investment and reimbursement for our country. One of the difficulties is that the duration for taxation is very hard to determine. If it is a lifetime taxation, then the problem of investment

and reimbursement for continued education is being ignored; but if it is short-termed (e.g. 5-10 years), then it is likely to cause personal income of people with advanced education to be several times higher than those of ordinary laborers, and it is very difficult to realize full reimbursement for the investment in advanced education.

Lastly, although it is very good to adopt the method of loans for advanced education, this method of granting personal loan or collecting personal taxes, however, will cause the reimbursement period for educational investment to be as long as ten-odd years. This is like a long-term solution for pressing emergency which does not do much good for the current situation of serious shortage in capital and educational fundings in our country.

To tackle the above-described situation, we must find a method of investment for advanced education and its reimbursement which meets the conditions of our country. This method should be able to overcome the above-described major drawbacks and should be based on the premise of satisfying the following conditions as much as possible: (1) that it is able to take care of the interests of the state, the enterprise and the individual simultaneously; (2) that it is beneficial to the growth of national economy and reasonable movement of talents within the domain of society; (3) that it is conducive to further reform of educational system and economic system, making them move toward rationalization; (4) that it is simple to implement with reasonable commitment, minimizing the losses brought about by organizational changes during the reform process.

I believe that in current educational reform we should continue to carry through the guideline of combining multiple school operation types, multiple investment channels and multiple reimbursement methods in order to evaluate and compare with various forms through implementation thereby finding the best model which not only meets the actualities of China but also promotes social economic development. Here, I propose an idea of "walk with two legs, commit in three areas" as the

short-term target model for the reform of educational investment in our country.

(1) Since the scale of advanced education in our country should still be properly expanded and investment in advanced education itself will eventually benefit the entire society, it is reasonable that the society shares part of the burden. Moreover, a large portion of graduates from advanced schools are assigned to enterprise units and the existence of these enterprise units is indispensable to the development of the entire society; therefore, from now on part of the investment in advanced education should continue to be appropriated from national-level budget. Since currently the weight of advanced education in the entire education of our country is still small, the percentage it takes up in national investment should also be reduced somewhat, and the balance portion should be supplemented by forms such as enterprise-pays-for-people-hired and individual-pays-for-tuition, etc.

(2) Since enterprises are the direct beneficiary of employing high-level manpower and they have become relatively independent commercial goods producers after the implementation of profit reform tax, they should pay a specific reimbursement foundation for the cultivation expenses of high-level talents they use. Currently the tax revenues paid by enterprises primarily come from natural and material areas, whereas the differences in intellectual area have not been fully accounted for, and this may cause greater differences in the new competitions among enterprises. In theory, the higher intellectual levels possessed by existing enterprises are basically the result of long-term investment by the state, and part of the profits should be levied by the state as an reimbursement for the expenditure in intellectual investment by the state. To levy for reimbursement foundation, the method of levying "fixed capital assets usage tax" on enterprises during the process of profit reform tax can be copied to tally up number of talents at existing enterprises and levy a specific amount of taxes in the form of "high-level human resources usage tax" (similar to education tax) each year according to the actual number of talents used

by the enterprises. If talents are transferred or lost, then the amount of tax levy should be reduced correspondingly; conversely, it should be increased. Due to the situation that the national finance is currently structured separately, the "high-level human resources usage tax" for province-affiliated advanced schools can be collected jointly by the provincial finance departments.

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(3) Since the productivity level of our country at ~~A~~ current stage is still not high enough and the national financial power is limited, it is reasonable to require individuals to share part of the investment in advanced education. The style of letting the state be in charge of everything should be changed from now on. The tuition subsidies should be gradually replaced by scholarships and students generally must all pay a specific amount of rent and tuition. For students whose families are financially severely stricken, educational loans can be granted. Meanwhile, the assignment method for graduates should be reformed. The employing units can confer with schools upon graduation of students, coupled with consideration of personal preferences, to select and hire superior ones, or the students can contact the work units themselves.

If the above-described method is adopted, the source of investment for advanced education of our country can be somewhat enlarged thereby enabling more capital to be appropriated for regular education and gradually realizing the goal of compulsory and free education. This is conducive to upgrading teaching quality and educational investment effects of advanced education. Through the reform of investment and assignment systems, the lateral connections between schools and society will certainly be further enhanced and thereby making systems such as contents of teaching, method of teaching, admission and examination, etc. further rationalized through the reforms that come with them.

ADVANCED EDUCATION IN THE SCIENCE OF NURSING IS BEING RESTORED  
IN OUR COUNTRY—ELEVEN ADVANCED MEDICAL SCHOOLS HAVE ALREADY  
TEST-OPERATED THE MAJOR IN THE SCIENCE OF NURSING

Reporter Chu Weihua

Health News (Beijing), 1986. 4. 17. (1)

Staff Writer This reporter has learned from the workshop of Teaching for Advanced Education in the Science of Nursing held on March 30 in Xian for the first time in China that the aspiration of the vast medical and nursing workers of our country to demand the restoration of advanced education in the science of nursing, which has been discontinued for over thirty years, has been gradually materialized. In the recent couple of years, eleven advanced schools have test-operated the major in the science of nursing and the special nondegreed class in the science of nursing, and the enrolled students have approached 700 people. The educational undertakings in the science of nursing of our country have entered a new era of not only having middle-level education but also advanced education.

For a long time, since the education of the science of nursing in our country has only maintained a single-layered, middle-level nurse major and an incomplete elementary-level nursing personnel training program, the development of the science of nursing as an independent discipline in our country has been affected. In recent years during the

restoration of advanced education in the science of nursing, a more complete school operational system has not been established and a few problems which require immediate solutions have been encountered due to lack of experience in the operation of schools. The workshop which was jointly sponsored by the Ministry of Health, the U.S. Hope Foundation and Xian Medical University has timely investigated problems such as cultivation goal, curriculum allocation, establishment of faculty rank, reforms of contents of teaching and method of teaching, etc. in the advanced education in the science of nursing of our country.

The representatives believed that a cultivation goal which reflects the social needs is the starting and finishing points of advanced education in the science of nursing of our country. As the mode of medical science changes, the advances in medical science technology and rapid development in immunology and rehabilitation also require a corresponding development in the science of nursing. Nursing professionals can no longer be just the caretaker of physical illnesses and they must possess extensive knowledge in areas such as biology, psychology, sociology and liberal arts science, etc. And they must be good at applying this knowledge and professional skills to conduct overall nursing care of physical and psychological aspects of patients well. As far as the cultivation goals for senior-level and middle-level nursing professionals are concerned, i.e. professional knowledge and skills, there should not be only difference in quality and no difference in quantity.

The representatives also believed that the science of nursing is an independent discipline. When test-operating advanced education in the science of nursing, if the contents of teaching for medical students are forced on students of science of nursing in order to save trouble, causing the teaching results to deviate from the original cultivation goal, then it will be a failure. Therefore, we must constantly search and mold senior-level nursing talents according to the brand new mode of science of nursing.

## THE "THREE FACES" AND THE REFORM OF ADVANCED EDUCATIONAL MANAGEMENT SYSTEM

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"Education must face modernization, face the world, face the future", this is the new strategic guideline for educational undertaking in the new historical era set forth by Comrade Deng Xiaoping and is the theoretical basis and fundamental guiding thought for the conducting of our full-scaled educational reform. Therefore, to earnestly learn the instruction of the "three faces" and to profoundly comprehend the spiritual substance of the "three faces" have extremely important significance for the conducting of full-scaled reform of advanced education.

This paper attempts, on the basis of comprehending the spiritual substance of the "three faces", to start at uncovering current drawbacks of advanced educational management system of our country and propose some humble viewpoints and suggestions for the reform of advanced educational management system for the review of those comrades who are involved in the undertaking of advanced education management.

## I.

Education to face modernization, face the world and face the future are one unified, indivisible entity, and there are close relationships between the three. For education to face modernization, it must certainly face the world. Whether education faces modernization or faces the world, it is to cultivate a new generation of people for the construction of socialism and build a future of socialism and communism.

For education to "face modernization" is the core of the "three faces". As early as May of 1975 Comrade Deng Xiaoping had instructed that: "We must realize modernization and the key is to advance science and technology. Science and technology can not be developed without grasping education. Modernization will not be realized through empty talks, there must be knowledge and talents. Without knowledge and talents, how can they advance?" ("Selected Works of Deng Xiaoping", page 37) What Comrade Deng Xiaoping meant by talents here are those who have mastered modern scientific and technological knowledge. There must first be talents for the construction of modernization if society is to be modernized. And the basis for cultivating talents for the construction of modernization lies in education. Therefore, as the place for cultivating talents for the construction of modernization, advanced school is not only a place with the most concentrated knowledge but is also a place with the largest information input and output and with the fastest transferring rate; thus, various areas should not be maintained completely stable and unchanged, and must constantly regenerate themselves as production and science and technology develop.

It is well known that the world today is a world of rapid knowledge regeneration. According to statistics, there was only a total of 26 items of great discoveries and inventions in natural science in the 16th century; there were 106 items in the 17th century; they increased to 156 items in the 18th century; they jumped to 546 items in the 19th century; they reached 961 items during the first half of the 20th century and after the 60's the total items of discoveries

and inventions in science and technology even exceeded the sum during the previous 20 years. Also according to estimation by British scientist James Martin, scientific knowledge of mankind doubled every 50 years during the 19th century. After the history of mankind entered the 20th century new knowledge has been increasing 5 times every 20 years; some experts estimate that now it double every 3 years. About 90% of the knowledge in modern physics is new development of mankind after 1950; currently there are about 4 million-odd kinds of chemicals known to mankind, whereas there were only 1 million kinds back in 1950 and there were only 1,200 kinds over a century ago in 1880; now there are close to 20 inventions every hour, there are 6,000 to 8,000 papers published every day, and scientific papers published reach 20 million every year around the world; the amount of information almost doubles every 20 months. Thus, the new technology revolution has set forth fierce challenges for education. If we take this lightly, stick to the old rules and never mind reform, we will be left behind and it will be difficult to cultivate talents who can adapt to the needs of future. The modernization undertakings require people who master modern knowledge and the duty of our country's education is to cultivate qualified talents for the realization of socialist modernization and for the struggle of communism. Therefore, education must face modernization.

For education to "face the world" is to understand and learn the latest results in world scientific and technological development, and achieve "foreign knowledge for Chinese use". The purpose is to promote and realize socialism modernization of our country and meanwhile also make new contributions for the world.

As the world science and technology rapidly develop, their regeneration cycle is greatly reduced and the social status and functions of education also begin brand new changes in response to it. It must be noted that the construction of modernization of our country is being conducted within the world environment. In order to guarantee its conducting and utilize all usable external conditions as much as possible, the urgent duty faced by advanced education should be to

unrelentingly watch the trend in development and changes of the world closely and to quickly keep the new situation and new movement of various fields in the world under control. That is to say to fully utilize the entire spiritual wealth of mankind, i.e. knowledge, to serve for our country's construction of modernization. Just as what Comrade Deng Xiaoping had pointed out that "it is possible to exceed advanced countries only by learning from advanced countries." Therefore, education must adapt to the new trend of world development, adapt to our country's "open-door policy" and the needs of the increasingly developing international exchanges as well as the increasingly upgrading international presiges. Meanwhile, "face the world" is also the important premise of catching up with the development of the times and conducting education reform, especially the study of reform of advanced school management, for today's countries in the world. Therefore, "education must face the world" is not only the requirement for education by the socialism construction of our country but is also the experience summarization of conducting education reform in various countries or the world.

For education to "face the future" is that education must take the needs of future economic, social and scientific and technological development into full consideration and its goal is to cultivate talents needed in the future. This "future" should include near future and also include the far future--communism; it not only concentrates on the urgent needs of actualities in our country but also looks upon future development of the world. This is because: (1) education is in a process of development just like any other social phenomena, among them "past relics, current basis and future germination can be seen at any time" ("Selected works of Lenin" Volume 1, Page 45). Only by standing on current basis, critically inheriting past legacy and greatly supporting future germination can development of education be obtained. For this reason, we must now consider what the society will look like by the end of this century and early 21st century and what kind of talents can meet the needs of society at that time. Especially, we must be prepared for possible future problems and plan for the needs for the

future. (2) The modern economic construction requires that education be excessively developed. The excessiveness of education is primarily displayed in two areas: one is that the growth rate of education investment should exceed the growth rate of economy; two is that the goal of education to cultivate talents required for future economic development should be exceeded. This kind of "excessiveness" of education is determined by the characteristics of education itself. One is that the education cycle is long. There is an old saying: "ten years to cultivate a tree, a hundred years to cultivate a person". Only when education "faces the future" can the talents cultivated adapt to the needs of future undertakings; two is that since education is a complex social phenomenon, it is affected by various factors such as economy, society, science and technology externally, internally it is a system of various classifications. Only when education develops excessively can various professional talents of sufficient quantity, high quality, proper level ratio and complete category be cultivated. The "excessiveness" of education determines that education must face the future.

However, facing the future is not to say that education can be separated from reality; it should cultivate successors for communism and accomplish it as a special duty while at the same time foresee the future of world science and a technology.

Therefore, to carry through the "three faces" is a big issue concerning construction of the four modernizations, national future and destiny of our country. To correctly comprehend its spiritual substance is the premise of our conducting full-scaled reform of advanced educational system.

## II.

The thought of "education must face modernization, face the future and face the world" set forth by Comrade Deng Xiaoping points out the close relationships between education and society, education and future education of our country and the world. It reflects the rule for developing advanced educational undertakings and exemplifies the new

trend and new duty faced by advanced education.

It should be pointed out that there have been fruitful accomplishments in the advanced education of our country since the establishment of the People's Republic and quite a few excellent experiences have also been accumulated which are worth summarizing and promoting. However, due to the small farmer economic thought and "leftist" influences, bondage of the Russian model as well as remnants of old China and old traditions, especially the destruction during the "ten-year disaster", there still exist many serious drawbacks in today's advanced educational system of our country which is far from being able to adapt to the requirements of the "three faces" and hinders the progress of four modernizations. For this reason, reform must be conducted. In order to reform, first the drawbacks in existing educational system of our country must be fully understood.

Then, what are the drawbacks in the existing educational system of our country?

First, it is a linear, closed and rigid educational model.

Generally speaking, the characteristics of existing advanced educational system and model of our country can be expressed by three words, and they are: unity, guarantee, close.

Unify implies too many restrictions and too much centralization. That is to say that: "macroscopic issues are not solved, whereas microscopic issues are tightly controlled." Those that should be controlled are not being controlled and those that should not be controlled are being controlled ; major issues are not being enhanced and minor issues are being forced upon; for example, unified teaching plans, unified admission and unified placement. Especially, education is being managed by administrative method. School is made an affiliated entity of government organization and under the control of administrative ministry where the situations of "owned-by-ministry", "fragmented

groups" and "independently-operated" are formed.

The 900-odd advanced schools throughout the country are currently divided into 3 groups to manage, among which 36 schools are under the control of Ministry of Education, 250 schools are under the control of central ministries and committees, and the remainder are controlled by provinces (cities) and autonomous regions. This kind of management system deprives school of the authority it should have and ties the hands and legs of school down. It hinders the activeness and initiative for school operation of the ministries, local authorities and schools, making the school lack external pressure and internal impetus, and the entire entity lack vitality.

There are oversized organizations and overstaffing within the school.

The school organization is top-heavy with reversed priorities. School (institute) level organizations are huge, whereas department level organizations are very small. It has always been "one needle on the top with a thousand threads down below". The department-level can only be busy with duties assigned by the various school (institute) level organizations and can not display initiative and creativity.

Guarantee implies the "wholesale purchase, guaranteed sale" in admission and assignment, and the egalitarianism and two "big rice pots" in education. There are serious waste phenomena of not only inefficiency but also ineffectiveness.

Advanced schools are just like economic ministries where unified fundings and unified expenditures, wholesale purchase and guaranteed sale have long existed: the state appropriates money and assigns personnel, running the whole show. Therefore, as far as various levels of educational administrative ministries are concerned, the cost for cultivating one student is none of their business, and after all, it is the state that bears the responsibility; as far as a school is

concerned, the number of students admitted and the quality of graduates as well as whether the graduates meet the needs of national construction or not are not to be worried about and after all, the state will assign them; as far as various departments and personnel are concerned it does not concern them much as to the quality and cost of cultivating talents, and it makes no difference whether working more or working less, performing well or performing bad; as far as students are concerned, once being admitted into university it is like getting into a guarantee company, and it makes no difference whether studying well or studying badly; once they complete study time, diplomas are received and wages start coming. Thus, school is being turned into an "official agency" which hands out "iron rice bowls". Schools eat off of the "big rice pot" of the state and individuals eat off of the "big rice pot" of the school. There are more and more school personnel and the average annual expenditure for one student is getting larger and larger. However, services for the society provided by school are not increased correspondingly. On the average one teacher was responsible for 7.2 students at advanced schools in 1952 nationally, i.e. teacher-to-student ratio was 1:7.2; it was 1:6.3 in 1957; 1:4.9 in 1965; 1:4.3 in 1979; and it was 1:3.2 for agricultural colleges in 1983 nationally. At present, the national advanced school's teacher-to-student ratio is 1:4 whereas it is 1:10 in foreign countries, the efficiency is getting lower and lower. Conversely, after the party's Third Meeting of the Eleventh Central Committee Plenary, educational investment had been greatly increased while the state was still under difficult economic conditions. The expenditure for national educational undertaking in 1981 increased by 102.7% over that of 1976, averaging an annual growth of 15.2%, whereas the national financial revenues only increased 29.2% during the same period, averaging an annual growth of 5.3%. The percentage of educational undertaking fundings in total national financial outlay has also increased year after year. It took up 6% in 1979, 7.8% in 1980, 10.2% in 1982 and educational undertaking fundings in 1982 increased by 1.32 billion Renminbi dollars over 1981, a growth of 12.9%. Since there is no financial audit as far as management is concerned, the school does not bear any economic responsibility and a significant

portion of the increased undertaking funding was distributed as wages. Among the various expenditures of school, there are rather serious wastes and material idling. Since the source of capital for advanced schools primarily comes from national budget appropriations without reimbursement, advanced school thus takes things for granted. Some of the precision instruments only operate a few dozen hours each year; some are even idled for extended periods of time. Therefore, investment effectiveness is beyond consideration.

Meanwhile, "guarantee" is also displayed in school functioning as society and it is all-encompassing. An university is almost like a "small society". Eating, clothing, going to bathroom, sleeping, having babies, getting old, getting sick, death and retiring along with toddler (nursery), small (elementary school), medium (secondary school), large (university), research (graduate school) and work (placement of faculty's children), the school is involved in every aspect. Thus, the leadership of the school and limited manpower, financial power as well as material power are dispersed and unable to guide the school to conduct teaching and scientific researches.

Close implies closeness. School should be an open system in order to be vigorous. Since the management system of advanced schools in our country is of "independently-operated" and "owned-by-ministry system", the various schools which are originally interconnected and interplaying become vertically dislocated and laterally closed, a situation where "you can hear each other's chickens and dogs, but you never want to have anything to do with each other". Meanwhile, there is also very little contact between the advanced schools and the society, making interconnection difficult and resulting in superiority and effects of some of the school's good specialized fields not being able to function. There is also duplication in establishing majors and many fields are being too finely subdivided, causing students to have a narrow knowledge spectrum and weak adaptability. Especially, since for a long period of time our country has implemented the "close-door" policy, there is little contact between our advanced schools and the outside

world. Given this situation, the advanced schools are thus difficult to take off and the entire educational undertaking difficult to develop.

Second, the scale of advanced education is small.

Currently, there are 4.1102 million graduates with college degrees and associate degrees in our country, averaging only 4.1 graduates in ten thousand people. This shows that the scale of our country's advanced school is small and cultivation capability is small. According to the statistics announced by Ministry of Education for the 35th anniversary of the establishment of the People's Republic, there are 1.2068 million students with various majors enrolled in 805 regular advanced schools throughout the nation. The enrolled students average only 1,400-odd persons per school. This kind of scale not only can not satisfy the state's needs for talents for the construction of four modernizations but also can not satisfy the demand for advanced study of the vast youth, causing the majority of high school graduates to suffer from having no college to go.

Third, the structural level of advanced education is unreasonable and the discipline ratio is seriously out of proportion.

It displays as: problems of unreasonable structure and disproportionate ratio between college graduate students, majors, associate majors as well as middle-level associate majors and vocational schools, between various disciplines and between various levels of normal education thus causing situations of talent shortage and great wastes.

As far as structure and level are concerned, ratio between major and associate major is seriously out of proportion. There were 1.20 million-odd enrolled students in regular advanced schools in 1983 nation-wide, and among which only 23% were students with associate majors. Half of the students with associate majors were students studying to become teachers and there were very few other majors. Among the students enrolled in engineering advanced schools, only 11.7% were

with associate majors and the ratio of students with majors and students with associated majors is 9:1. The percentage of students with associate majors in agriculture and forestry advanced schools has been very small in the past and it is still dropping each year in recent years: it was 24.6% in 1980, 17.1% in 1981, 18.6% in 1982 and it dropped to 15.7% in 1983.

Due to the singular structure, it is difficult to satisfy the needs of construction undertakings for different levels and different specifications. In engineering and mining enterprises, engineers and technicians playing reversed rolls are very common phenomena. The ratio of engineers to technicians is 6.6:1 for the metallurgical field in some of the cities; ratio of engineers to technicians is 5.5:1 for some of the large steel plants. Meanwhile, due to unreasonable structure and unreasonable placement of talents cultivated, senior-level personnel doing low-level work is common and work not related to field of study is serious.

As far as the ratio between departments and sections are concerned, there are more heavy industry majors and less light industry majors. According to statistics, there were 17,592 students enrolled in majors such as light industry, textile industry, food industry, etc. in 1981, which took up 9.8% of the number of enrolled students with engineering major. There were less students with liberal arts majors; there were especially few students with applied liberal arts majors. The percentages of students with majors in finance, economy, political science, law and management were too low. There were 233 thousand students enrolled in liberal arts education nationwide, which took up 20.2% of the total number of enrolled college students nationwide, and among which 53 thousand were with majors in finance and economy, which took up 4.6%; 13.6 thousand students were political science and law majors, which took up 1.2%. There were even less agricultural production majors and economic management majors. Therefore, the demand for certain majors exceeds their supply whereas the supply of other majors exceeds their demand. According to statistics of assignment situation

of 135 college graduates among 845 professions in 1981 by Ministry of Education, demand exceeded supply for 253 professions which took up 41.7% of the total number of graduates' majors; supply exceeded demand for 157 professions which took up 18.5%.

The drawbacks in advanced education management system are far more than those described above. But they do indicate that the problems in advanced education management system of our country are so serious that reform is really inevitable.

### III.

In order to build an advanced educational system with Chinese characteristics that can produce more talents, produce talents fast, produce good talents, produce more results, produce results fast and produce good results and make education serve the construction of national economy better, we must base on the strategic guideline of the "three faces" and start from actualities. We must, on the basis of exposing drawbacks in advanced educational system, study earnestly to carry through the education reform. There must not only be large adjustment and great development in management system and scale of school operation, but active investigations in management reform and contents of teaching, methods of teaching and means of teaching must also be conducted. For this reason, comments and suggestions on the following problems are made.

(1) Simplify bureaucracy and delegate authority to make the advanced schools a relatively independent school operation entity.

The core of reform of advanced educational system is to enhance the vitality of school and conduct educational undertakings well. Its substance is to change the existing closed, rigid model into an open system that is full of life and rich in vitality in order to rejuvenate schools.

Therefore, the existing chain-of-commands system of "owned-by-

ministry" and "fragmented groups" in which advanced schools are affiliated under the ministries must be changed to enlarge the authority of school and make school a relatively independent school operation entity. This is certainly not to say that advanced schools do not want guidance from government ministries and that education can be separated from politics with each handling its own business. This is to say that "mother-in-law" of advanced schools must be reduced and that levels of chain of commands must be reduced to establish clear responsibility and hierarchy, with each level performing its own duty.

How do we establish hierarchy with each level performing its own duty?

First of all, as far as the state is concerned, it is through road, guideline and policy of the party, through related laws and regulations, and through educational ministries in the chain of commands to lead and guide advanced schools. Educational ministries in the chain of commands are primarily responsible for coordination planning, legislation, setting policy, review and approval of schools, allocation and adjustment of schools, funding and investment, and, through study and oversight, guide advanced schools in areas such as monitor and evaluation of school, appointment and dismissal of president, etc. In summary, ministries high on top of the chains of command should concentrate on microscopic management and must not attend to too much details. As to in the microscopic areas, concrete authority should be delegated to various advanced schools. For example, admissions and assignment, appointment and dismissal of departmental and divisional management cadres, hiring of teachers, utilization of funding, allocation of funds, issuance of rewards, etc. should all be the president's responsibility and decided at school level. "Delegation of authority" is the combination of power, responsibility and benefit, and it is the key to a vitalized school operation.

Secondly, as far as advanced schools are concerned, it is to base on developmental rules of education and characteristics of school and actively, creatively develop various undertakings such as education,

scientific research, serving the society, etc. And on the basis of school system, major, admission duty required by the school and under the guidance of national planning, their own superiorities are fully displayed, their own capabilities are utilized and their own characteristics are developed.

(2) Expand "contents", tap the potentials of older schools and develop the scale of schools.

It is understood that universities with more than 10 thousand students are not rare in foreign countries, whereas universities with more than 10 thousand students in our country can be counted with the fingers in one hand; some of them only have a few hundred students. We know that the number of universities in the Soviet Union and our country is about the same but the Soviet Union has 5 million-odd enrolled university students whereas our country only has 1.20 million-odd enrolled university students. Hence, to develop educational undertakings number of schools is irrelevant, it lies primarily in expanding the scale of schools. University should be bigger and this is an effective way to upgrade school operation efficiency and investment effectiveness. It has been shown in implementation that it will save a lot of troubles to invest in an old university rather than establishing several new universities, and it will fully function in ways new universities are uncapable of. Therefore, emphasizing reasonable scale of schools in order to most reasonably and most economically utilize manpower, material and financial resources is the necessary composite portion of scientifically managing the work of teaching. Generally speaking, admitting two classes under one major is more cost-effective than admitting one class. Too few students admitted under one major will cause number of full-time teachers to be correspondingly reduced, which is counterproductive to teaching and research and also affects the upgrading of utilization rate of libraries and facilities. According to investigation and statistics, the average annual costs for cultivating one student at technical institutes with less than 200 teachers are 10-15% higher than those for schools with 200-300

teachers. Combining institutes with single discipline and expanding the scales of existing institutes have become a trend in the development of advanced education. For instance, in the Soviet Union large-scaled schools with over 5,000 students took up 23.4% of the total number of schools nationwide in 1966, and by 1971 it had increased to take up 38%. Average scale per school in advanced institutes of some of the countries: it was 1,000-student from 1940 to 1941 in the Soviet Union and by 1979 it expanded to 5,873-student; it was 3,600-student in 1976 in the U.S.; it was 2,224-student in 1979 in Japan; it was 1,553-student in 1965 in our country and 1,817-student in 1981.

To operate a bigger university, however, is not equivalent to allowing it to go lower and lower in quality. Presently, on the question of developing advanced education, situations such as opening up schools randomly and putting up signs randomly are quite serious. The county-operated universities are especially immature. Some of the schools lack every thing from teachers, facilities, buildings to fundings except for a school sign, and they still start admitting students. This kind of overly simple thought and style about operating university not only can not ensure quality of student but can also result in economic wastes for the state; it not only hinders development of other people's sons and daughters but also undermines the state. Therefore, to develop advanced educational undertaking is primarily to expand "contents" and tap the potentials of older schools.

There are a lot of potentials at advanced schools waiting to be tapped. According to statistics, there are 358 thousand full-time teachers at various advanced schools throughout the nation. The ratio of teacher to student is only 1:4. Whereas in the U.S. the teacher-to-student ratio for university was already 1:21 in 1930 (see "World Economy Report", December 3, 1984), meaning the duties of university teachers in our country is only one-fifth of those of the U.S. If admission is allocated according to the 1:6.5 teacher-to-student ratio for advanced schools stipulated by the Ministry of Education, then 200 thousand more students can be admitted each year nationwide. If it is

based on teacher-to-student ratio of the U.S., then our country can immediately increase the number of college students to 6 million people. Thus, the potential of operating school is far from being fully displayed.

At present, there are four ways for tapping potentials of advanced schools: one is to upgrade the quality of talents cultivated and increase and expand its contents and range for social services; three is to transfer personnel cut from one school to other units to utilize their specialties so as to fully display their effects; four is to provide school operation experiences for the new schools and assistance in areas such as faculty training, construction of laboratories, etc. as well as to adopt the "hen lays eggs" method to coordinate and operate branch school with related ministries.

To develop advanced education, of course, does not mean not to expand the "peripheral". It is necessary to properly expand the "peripheral", but specific conditions must be required.

(3) Advanced schools should have a reasonable allocation.

Advanced schools should be allocated reasonably. The nation has a national allocation; each province has its provincial allocation; the inland provinces (cities) should have universities; frontier provinces, autonomous regions should also have proper number of universities. This type of allocation is supposedly reasonable. However, for one province or one autonomous region, universities should be relatively concentrated; they are to be established at places with more convenient transportation and should not be dispersed all over the place. Especially, each region (meaning regions below provincial level) and even each county should no longer be required to operate university. Otherwise, not only necessary school operation conditions can not be guaranteed but a lot of trouble can also be brought about for admission source and transportation. Whereas relatively concentrated schools are beneficial to information and academic exchanges, to movement of talents and to the

establishment of experiments and references intelligence center, and can upgrade utilization rate of large precision instruments and facilities. Meanwhile, they are beneficial to intercompetition and upgrading level of school operation. To operate schools in a concentrated fashion should expand the range of directional admission and guarantee that it is a two-way system whereby regions without universities will also have talents available.

(4) Do not limit to one form. To implement the school operation style of multi-level, multi-specification, multi-channel and multi-format.

How should the level and structure of advanced education be considered? This is also the problem that should be solved presently.

As various economic forms develop by the day, the demands for talents by large number of collective and individual enterprises will grow bigger and bigger. In addition to adopting forms such as "consignment cultivation", "joint school operation", etc. to invest in owned-by-the-people universities, the aspiration to operate their own school is also getting stronger and stronger. We should warmly support and actively guide this. First of all, the "School Operation Law" must be legislated to set the forms of collective and individual school operation and make them legalized and systematized. Secondly, the "Percentage Planning" must be applied to guide them to concentrate on those levels and disciplines that are urgently needed by society and are relatively weak in the percentage relationships in order to avoid misdirected efforts and aimless school operation. Meanwhile, different specification requirements and specific standards must be set forth for various types of schools in order to avoid the pursuit of exaggerated fame, fancy appearance and formalism.

In order to solve the existing problem of underqualified middle school teachers and satisfy the needs for structural reform of secondary education, two- and three-year normal colleges and special classes

should be vehemently developed along with the vocational normal colleges. The vocational technical schools are also urgently needed in the current national economy construction and their development should not be taken lightly. Especially, there are already nine hundred-odd advanced schools in our country at present and there exist problems among cadres involving in management such as no qualified successors, declining quality and inability of scientific management. Therefore, to establish management major in advanced education and management institutes has really become a matter of urgency. Meanwhile, in order to relieve the current status of management personnel shortage in every area of society, related majors in advanced schools should offer basic courses in management so that students can learn a little management science knowledge and understand scientific management to enhance their adaptability after graduation. In conclusion, not limiting to one form and implementing the school operation style of multi-level, multi-specification, multi-channel and multi-format is the effective way to reform the singular model of advanced education in our country and cultivate talents for the construction of four modernizations.

The reform of management system of advanced education involves a wide spectrum and is a complicated problem. For example, areas such as movement of talents, president-in-charge system, set organization with set personnel, rewards distribution, scholarships, cultivation with reimbursement, etc. should all be earnestly studied and summarized. We must further open up our minds, broaden our field of vision, encompass the need for talents by the national economy, actively crank up our brains to come up with ideas and methods, fearlessly implement, boldly reform and strive for the establishment of advanced educational management system with Chinese characteristics.

## TENTATIVE DISCUSSIONS ON THE CHARACTERISTICS OF ADVANCED EDUCATION

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The "Decision on the Reform of Educational systems by the Central Committee of the Chinese Communist Party" has set a new milestone in the education history of our country and it is the great outline for education reform. The announcement of the "Decision" has greatly promoted the thriving development of the tide of reform in the advanced education front.

Reform is a profound revolution; it not only requires undaunted, creative spirits but also requires a realistic scientific attitude. Only by following the rules of matters themselves, and abiding by the trend, can the anticipated goal of reform be reached. To have profound recognition of matters is the premise of reform, whereas mastering characteristics is the basis for understanding matters. Comrade Mao Zedong had pointed out that: "for every kind of movement form of substance, the common points between it and various other forms of movement must be noted. But more importantly, the basic item for us to understand matter is that we must pay attention to its characteristic points" (1). Therefore, to study the characteristics of advanced education undoubtedly has active effects and specific significance toward

operating advanced education well and conducting reform effectively.

Advanced education is an organic composite portion in the entire educational system. It goes without saying that advanced education contains substance of ordinary education and that it is regulated by ordinary educational rules. The substance of education is an activity of cultivating people according to specific needs of society. It is closely related to politics and economy. Politics and economy determine education; and conversely, education exerts great influences on politics and economy. The contradictory movement of this relationship forms the basis for educational development to occur. Any form of education is an education under specific historical conditions and social conditions; therefore, the characteristics of education will certainly reflect the requirement of production method and be branded with marks of the time. Education has different characteristics during different stages of historical development, its purposes, contents, forms and methods also have fundamental differences and various distinctions. As society progresses, certain original characteristics gradually disappear while other new characteristics constantly emerge, and this phenomenon is especially distinct for advanced education.—Therefore, when we study the characteristics of advanced education, correct understanding can only be obtained through inspection among development and changes. Meanwhile, it should also be pointed out that advanced education has a variable side and also a stable side.

As far as research method is concerned, characteristics are generated from comparison; without comparison, there are no such things as characteristics. Comparison always requires a reference subject and when different reference subject is selected, different characteristics will be deduced. Therefore, there are different angles in the study of characteristics of advanced education and the contents of characteristics reflect different sides. This paper starts primarily from the common properties of advanced education and, through the comparison with ordinary education, discusses certain understanding about the characteristics of advanced education.

## I. Professionalism of Properties

The cultivation targets of advanced education are the various senior professional talents. The cultivation of professional talents can only be through professional education to make those who receive the education become specialized and learned in their field. Professional education is the important difference between advanced education and ordinary education; it is also one of the bases for its being.

Professional education is a product of historical development. Our country is the earliest country to have established the professional education. Tang Dynasty was the period with the most developed education in the feudal society of our country, and it reached an unprecedented, prosperous degree in the world at that time. The advanced education of Tang Dynasty was classified into six branches of Zi School, Four-Discipline School, Shu School, Mathematics School and Law School. "The greatest contribution to advanced education by Tang Dynasty was the establishment of professional education and the setup of practical schools such as professional schools or professional training in mathematics, astronomy, medical science, etc." (2) and it was about several hundred years earlier than Europe. After the realization of socialized mass production in mankind's society, labor is highly subdivided and professionalism is greatly enhanced; enormous demand for professional talents is being raised thereby making the position and effects of professional education more conspicuous, and meanwhile promoting the classification of profession to gradually form the system of professional education. The current social structure is complicated and there is a vast variety of ministries and professions. The diversity of society requires that education produce various professional talents that correspond to its needs and match its subdivision.

The accumulation of mankind's knowledge is as vast as the open sea with numerous discipline fields. At present, the disciplines in natural science alone have reached two thousand-odd, among which physics has

fifty-odd branches, biology has seventy-odd branches, chemistry has one hundred and fifty-odd branches. In the meantime, two or more disciplines intertwine to create many fringe sciences and new sciences. It is absolutely impossible for one person to become expert in every field; he should only select one or two majors as his specialization direction and then his undertaking can be successful. The talents we are talking about are always specific and will combine with specific professions. Just as there is no one panacea in the world that guarantees to cure all diseases, there is no such thing as a do-all scientist. Ordinary education is the basis of professional education and professional education is the necessary trend in the development of ordinary education. After education enters advanced education of the highest level, to implement professional education becomes the rule of education development.

Today, we have predicted the impact of the new technology revolution; social enterprising structure and labor structure are changing, and knowledge-intensified and technology-intensified type of new enterprises will gradually replace labor-, capital-, energy-intensified type of enterprises. According to statistics, the annual growth rate of knowledge-intensified type of industry is several times that of the conventional industry in Japan. The export of knowledge-intensified type of industrial products in 1980 increased by 60% over that in 1979. Under the situation of science-oriented society and society-oriented science, the significance of professional education becomes even more important. Only when a country possesses a large number of senior professional talents can it continuously conquer more scientific peaks, can it be better organized to march toward the depth and width of production and put economy in the leading position. Therefore, the number of professional talents has become the important gauge for measuring whether a country is developed or underdeveloped.

Advanced education is the professional education built on the basis of ordinary education, and its purpose is to cultivate senior professional talents. There is no objection as far as this point is

how to comprehend professionalism and how to realize it.

When we open the history book on the development of science and technology, will we obtain such an inspiration, i.e. in the development of science and technology the two trends of division and generalization interplay with each other, but to analyze from the major tendency of different developmental stages it has usually experienced the process of generalization ---division---highly divided, highly generalized. science and technology was quite developed in ancient Greece, brilliant achievements were obtained in areas such as element theory, atomism, cosmology, astronomy, mathematics, biology, etc. Yet social science and natural science were all included in philosophy, and were in an elementary, simple entity state. Many philosophers were also natural scientists at the same time. Just as Engels had pointed out that: "the embryo and germination of various later viewpoints could almost all be found in the various forms of Greek philosophy. Therefore, if theoretical natural science wants to search for the developmental history of its own general theory today, it will have to go back to the Greeks." (3) In the second half of the 15th century, capitalist production method was gradually formed within the feudal society of Western Europe, and thus began a new era in human society. "This is the greatest revolution the earth has ever experienced. Natural science is thus born and formed in this revolution." (4) The developmental trend of science in this period was division, whereby social science and natural science were gradually separated from philosophy and were developing toward their respective scientific fields. By the first half of the 19th century, natural science had been divided into rather fine degrees, and kinetics, mathematics, astronomy, physics and chemistry had all formed their own specialized fields.

Today, the features of development of science and technology are that they are highly divided and highly generalized, and quite a few research items have always relied upon scientific group efforts in order to be completed. The nature is a unified entity, it is a multi-layered, multi-structured, multi-sequenced, complete network and as

comprehension continues to deepen, the trend of generalization and integration of science and technology will become more and more distinct. This trend displays not only within natural science but also displays between natural science and social science. Lenin had predicted that there would appear a strong tide going from natural science toward social science in the 20th century. Actualities have fully verified the accuracy of this prediction. On the one hand, natural science and social science interpenetrate each other, concept and method absorb each other thus resulting in many "hybrid" science. The lateral development of science has gradually eliminated the gap between natural science and social science. On the other hand, the social effects of natural science have become research subjects of social science, e.g. the study of environment, ecology, energy source, transportation, etc. These are problems that can not be solved by natural science and engineering technology alone; only by coordinating with social science can success be obtained.

The highly generalized science and technology have set forth the requirements for knowledge structure generalization of scientific and technological personnel. The U.S. has spent five years to conduct investigations on 1,310 scientists and found that those with creative achievements all possessed generalized knowledge structures. For example, two-time Nobel Physics Prize Laureate Bartin had worked at five universities, three companies and one naval research institute, and his work had involved fields such as electrical engineering, mathematics, theoretical physics, applied physics, military engineering, etc. Faced with the trend of highly generalized science, advanced education in the structural area the development is toward further generalization, several colleges are established within one institute. Take the Massachusetts Institute of Technology of the U.S. for example. There is the college of engineering, college of science, college of management, college of liberal arts and college of architectural design within the institute. Under the Tokyo University of Japan is the college of engineering, college of science, college of agriculture, college of medical science, college of pharmaceutics, college of law, college of

economics and college of education. In teaching, the discipline boundaries are broken to implement interpenetration of liberal arts and science. The basic courses and basic theories are greatly enhanced to stress the cultivation of student's intelligence. Take the engineering university of the U.S. for example. In the teaching plans for training electrical engineers the percentage of basic courses has risen from 20% of the total hours taken in the 50's to 50% and percentage of major courses has dropped from 45% to 20%. Presently, the percentages of basic courses and major basic courses at engineering colleges in the Soviet Union usually take up 65% to 80% of the teaching plan.

How to cultivate professional talents with generalized knowledge structure is an important subject the advanced education reform of our country currently faces. To search for modern science and technology and the intellectual and physical requirements modern production set forth for laborers, and to search for ways to develop intellectual characteristics of people are an important content of our advanced education reform. In this reform, the traditional comprehension of professional characteristics of advanced education must be broken to clarify the significance of professional education under the new trend and earnestly study paths for cultivating talents with generalized knowledge structure thereby making the talents cultivated by our advanced education not only possess strong theoretical basis but also possess extensive and specialized knowledge.

## II. Duality of Duty

"There are many problems in the area of education, and the bottom line is to produce talents and results." (5) Advanced education bears the duty of cultivate senior professional talents, but it also bears the duty of scientific research.

During the Spring-Fall Warring period of our country, as the slavery system collapsed the "official School" originally under the control of slave masters started to go downhill, and a state of "as the

son of heaven loses his official schools, the surrounding barbarians pick up the slack" was formed. Thus, "private school" started to develop. The establishment of "private school" in the education history of our country had a trend-setting significance. Cultivating talents while developing academic research at the same time is one of the important characteristics of "private school". Various academic thoughts were able to freely contend resulting in a fruitful generation in the academia of our country where a hundred schools contended. During the ancient Greece period in Europe, after Ptolemy established his empire in Egypt he built large Muses institute that had dual-function of teaching and academic research in the capital city Alexandria. According to documentation, its affiliated library held half a million volumes of books. In addition, it also set up botanical garden, zoo and astronomy observatory to develop extensive academic researches while at the same time teaching was conducted. Thus, the Greek science and cultural center was soon moved from Athens to Alexandria and the long accumulated and gradually formed natural science of ancient Greece was able to bear bountiful fruits there.

The creation of modern advanced education is connected to the occurrence of capitalist production method, and meanwhile advanced education has contributed undeniable effects in the development of capitalism. The prosperity of Italy during the Renaissance, Great Britain's becoming the center of world science and technology in the 17th century, the rise of science and technology after the victorious revolution of French bourgeois in the late 18th century, these were all inseparable from the talents transferred and results provided by advanced education. Since the awareness of people had been constantly upgraded, by early 19th century the research of natural science had been formally included in the teaching plans of advanced education. Berlin University of Germany, which was established in 1809, had clearly stipulated the principle of unified teaching and scientific research for operating school.

In modern days, the importance of effects of science and technology

has reached an unprecedented degree. Former American President Carter pointed out in his state of science and technology address in 1979 that: in the past thirty years more than 30% to 40% of the growth in the U.S. national economy has been the results of technological reform. According to the statistics of Soviet economists, 75% of the growth in Soviet labor productivity has been realized by the adoption of new technical equipments and advanced technological processes in the recent twenty years. As a result, for a developed country, science and technology have taken over or are taking over the leading position among natural resources in economic development. Therefore, to display the superiority of advanced education and to promote scientific research have received more attention from various countries. In advanced education, whether in depth or in width scientific research has both gained new development.

1. Strengthen scientific research organization. According to partial statistics, various major universities in the U.S. have established five thousand-odd research centers or research institutes. In France, starting from 1974 the National Scientific Research Center has been transferred to under the leadership of State Affairs Secretariat for University, and there are 1,135 research units under the said center; among which 819 units are located within universities or are jointly-operated with universities. The Soviet Union promulgated the decision "On Upgrading the Effects of Scientific Research Work in Advanced Schools" in 1978 and proposed to adopt measures, create conditions to build advanced school into a strong, interdisciplined, integral body of teaching and scientific research that is capable of conducting active investigations based on all basic fields of knowledge.

2. Increase scientific research investment. In recent years, the scientific research fundings of advanced schools in various developed countries have all been significantly increased. For example, from 1958 to 1966 in France, the scientific research fundings increased ten-fold during the eight years. They increased 5.2 times from 1957 to 1971 in the U.S.

3. Introduce scientific research into the teaching plans. The world's industrialized countries put heavy emphasis on college students participating in scientific research undertakings, and have implemented teaching and scientific research integration. They believe participating in scientific research is a necessary path toward the cultivation of student's creativity. Take the universities in France for example, teaching is divided into three interconnected stages; the first stage is basic teaching, the second stage is teaching of major courses and the last stage is to conduct the cultivation of scientific undertakings. Among the three stages the third stage lasts for two years; students conduct scientific research undertakings while studying specialized theoretical courses at the same time.

During the 35 years since the establishment of the People's Republic, special attention has always been paid to scientific research at advanced schools. In March 1956, the Science Planning Committee was established by the Ministry of State Affairs to lead the setting of scientific research development prospect planning for 1956 to 1967. In the planning outline (draft) the system of scientific research undertaking in our country was proposed for the first time: "the unified system of scientific research undertaking in our country consists of four areas of the Academia Sinica, research organizations of production departments, advanced schools and local research organizations. In this system, the Academia is the core of academic command, the research organizations of production departments and the advanced schools are two main forces and the local research organizations are the indispensable assistants." In June 1957, the Science Planning Committee of the Ministry of State Affairs held the fourth expanded meeting during which Vice Premier Nei Rongzhen further stressed that: "the scientific research undertakings of advanced schools must be actively promoted and vehemently enhanced. Teaching and scientific research are both the basic duty of advanced schools, and the two must be combined." Under the advocacy and care of the party and the state, rapid development in scientific research at advanced schools in our country has been obtained and significant contributions in shortening

the distance between our country and advanced countries and filling in blank disciplines of country have been made. After the Third Meeting of the Eleventh Central Committee Plenary of the party, the position of scientific research in advanced schools has been re-established. The "Decision on the Reform of Scientific and Technological System by the Central Committee of the Chinese Communist Party" points out that: "advanced schools and the Academia Sinica bear important duty in the areas of basic research and applied research." It is not difficult to observe from the way this is set forth that the position of scientific research at advanced schools has been made to further stand out.

The reason for advanced education to possess dual duties of teaching and scientific research is determined by the needs of society and also by factors of education itself. For a vast system such as the society, it invariably requires that its subsystems constantly strengthen their functions, expand their influences and promote the society to advance. As scientific research is being introduced into the education domain, the functions of advanced education has been significantly enhanced. Advanced education is situated at the highest level of education and it has already possessed the conditions—to take up scientific research duty by itself. The important path that leads to effective implementation of the dual duties lies in the integration of teaching and scientific research. Teaching is the transferring of scientific knowledge and scientific research is the sublimation and creation of scientific knowledge. Without creation of knowledge the contents of teaching can not be resourceful and well developed, and without accumulation and transfer of knowledge there can be no creation and revolution of knowledge. It is obviously impossible to cultivate high-quality talents without the integration of teaching and scientific research, and this has been proved by common experiences of various countries in the world. The integration of teaching and scientific research is beneficial to the upgrading of teacher's standard and academic development, and meanwhile it provides students with the opportunity to be involved with research work. The two is a relationship of basics and upgrade, inherit and create. Mankind is constantly

deepening its understanding of nature and society along the road from necessity kingdom to freedom kingdom in the contradicting movement of simultaneous inheriting and creating. Therefore, the internal connections of teaching and scientific research have caused the necessary result of integration of the two in advanced education.

Although there is inseparable connections between teaching and scientific research, which is the unification of dialectics, after all, they are two different undertakings. Although it can not be simplistically, mechanically prioritized when handling the relationship between teaching and scientific research; the needs of teaching, however, should always be guaranteed first.

There is probably little objection from people about the dual duties born by advanced education. However, as far as realizing the duty of scientific research is concerned, the emphasis is still not enough be it in the area of awareness or in the area of actual work, and it needs to be further strengthened. There are many aspects which affect the development of scientific research work of advanced education, but primarily there are three factors. — —

1. Political factor. History has proved that the rise of a country has always been accompanied by a social revolution or a thought liberation movement. Some people have investigated the scientific development in Great Britain, France and Germany and found that they have all been conducted according to the model of "philosophical high tide---social revolution---scientific high tide---industrial revolution. Whether this model is a general rule still requires further study, it explains, however, the influence of politics on science and reflects that scientific development requires a suitable political system, social environment and ideology. Ours is a socialist country and our social system is superior to that of the capitalist country. Especially, people's thoughts have been greatly liberated since the Third Meeting of the Eleventh Central Committee Plenary and under the advocacy of Comrade Deng Xiaoping, a social trend of respecting knowledge,

respecting science and respecting talents has been formed to welcome the spring of science and education.

2. Scientific research capability factor. The production of goods requires people, funding and material, and the production of spiritual wealth also requires people, funding and material. To apply them to scientific research capability of advanced schools, they primarily include four areas: (1) quantity and quality of teachers and scientific research personnel. (2) amount of fundings allocated for scientific research. (3) storage and circulation of library data and scientific and technological information. (4) level of instruments and equipments. To measure scientific research capability of advanced schools based on the above four areas has its relative superiority and also its obvious drawbacks.

3. Management command factor. The development of science not only requires suitable political conditions and specific scientific research capability but also requires the conducting of scientific undertakings according to the developmental rules of science itself. Scientific research of advanced schools is situated in the integration of teaching combining with scientific research and has its own characteristics and rules. Only by mastering these characteristics and rules can the arrangement of teaching and scientific research, maneuvering of manpower, allocation of fundings and utilization of equipment be made to reach the effect of being scientifically reasonable for the upgrading of scientific research.

In order to promote development of scientific research at advanced schools, those not-so-reasonable policies of science and technology must be adjusted to increase fundings for scientific research at advanced schools and loosen staffing requirements for scientific research. What is especially important for the present is the reform of management system. People do not praise science, technology and management as the three supporting columns of modern civilization and demand quality and speed in management for nothing. The "Decision on the

"Reform of Scientific and Technological Systems by the Central Committee of the Chinese Communist Party" describes the guiding thoughts, direction, contents and associated policies of reform, and it is an important piece of documentation. We should constantly strive for its implementation to make the development of scientific and technological undertakings of our country enter a new stage.

### III. Multiplicity in Structure

To serve production labor and to serve social life are the two major social functions of education, and are the fundamental reason for the existence of education. Society is a complex organism; it not only needs different "species" of talents but also needs talents with different calibers and different specifications. The various needs of society have created multiplicity in the structure of advanced education.

Presently, due to difference in tradition, history and status of various countries in the world, their advanced educational systems also vary; the multiplicity in their structures, however, is common. Although the structure of American advanced education is rather complex, it can still be generally divided into three levels.

(1) Junior colleges. This is the first level in the structure of American advanced education. Admission qualification is that you must be high school graduate and the school is two-year college. The duty of elementary colleges is two-fold: one is to select some of the students to transfer into junior and senior in regular colleges for further study; two is to conduct two years of vocational, technical education for the majority of students to cultivate semi-professional, skilled labor forces for the society.

(2) General universities and liberal arts and science colleges. This is the second level and is generally for four-year study. The majority of source of students are high school graduates and part of

them are graduated from junior colleges and are transferred into junior and senior year for study. Their duty is to cultivate general scientific and technological talents and specialized talents.

(3) Graduate schools. This is the primary level for cultivating senior-level scientific, technological and specialized talents. Graduate schools offers Master's and Ph.d. level courses. Master's degree requires one to two years of study and Ph.D. degree program admits people with Master's degree to continue studying for two to three years. At present, renowned American universities establish senior graduate school above graduate school to provide people with Ph.D. degree with the opportunity for furthre study and conduct "post-doctor education".

The advanced educational system currently implemented in Japan is the "three-level, one-specialty". The so-called "three-level" is: (1) short-term university level which is for two- to three-year study. Its purpose is to impart and research difficult, specialized technical knowledge and to cultivate professionally or daily required abilities. (2) general university level which is for four-year study and is centered around academic research. While it imparts comprehensive knowledge, its purpose is also to teach and conduct research of difficult academic theory to upgrade the student's ability of actual application. (3) graduate school level which is for five-year study. Master's level courses are offered during the first two years and Ph.D. level courses are offered during the latter three years. The so-called "one-specialty" is the senior specialized school. It is for five-year study and admits junior high school graduates. Its purpose is to cultivate middle-level technical talents.

After new China was established in 1949, advanced educational undertakings were actively developed for the needs of revolution and construction, and a sweeping reform for education was conducted. In August 1951, "On the Decision to Reform School System" and the school system chart of the People's Republic of China were passed during the

97th meeting of the Ministry of Political Affairs. The advanced education in our country is divided into three levels of specialized school, university and specialized college, and graduate school.

The structure of advanced education develops and changes with the society's need for talents. In this development and change, society providing material conditions is the premise and the relationship between supply and demand is the internal driving force for development and change. In the recent 20 years there has occurred a common trend in advanced educational structure of the world's industrialized countries to develop short-term advanced education and graduate student education. The short-term advanced education was originated in the U.S. and later has caught on in other countries. Short-term advanced education has characteristics such as short study time, quick result, clear cultivation goal, strong professionalism, flexible major allocation, low school operation expenses, etc. and therefore its rate of development has far exceeded that of long-term education. For instance, there were 597 junior colleges and 579 thousand enrolled students in the U.S. in 1950. By 1970, the number increased to 1,000 junior colleges and 2.40 million students. There were 180 short-term universities and 16 thousand enrolled students in Japan in 1950. By 1976, the number increased to 5 hundred-odd universities and 300 thousand-odd students. Due to the emphasis on scientific research duty of advanced schools and the increase in society's demand for "high-calibered" talents, the development of graduate student education has been significantly promoted. The number of graduate students in the U.S. has increased 4.3 times from 1950 to 1976, whereas during the same period the number of college major students has only increased 2.5 times. Comparing Great Britain in 1968 with prior to World War II, the number of graduate students has increased 13 times, whereas the number of college major students has only increased 4 times.

The advances in modern production and science have made the group effects of scientific and technological personnels to stand out more and more. The science of management has taught us that group power is

greater than the sum of efforts of people who are "fighting their separate wars" and many people have used the formula of  $1+1>2$  to express this phenomenon. Since it is a group, there will be the composition problem and its best composition is a layered, multi-specification and three-dimensional structure of personnels. From the overall angle, the higher the talent level in this three-dimensional structure is, the less quantity is required. According to investigation of social employment situation in 1960 and 1978 in Japan, the number of people involving in intellectual labor took up 28.2% of employed nationwide in 1960, among which only 7.2% were high-level intellectual laborers such as professor, engineering technical personnel, doctor, lawyer, etc. In 1978, people involving in intellectual labor took up 41.9% of employed people, among which 11.2% were high-level intellectual laborers. According to 1983 statistics, students who studied abroad, graduate students and college students took up 42% of scientific and technological personnel in our country, and junior college students and people without college educational background took up 58%. The progressively reducing trend in society's demand for different levels of talents from junior-level, middle-level to senior level has determined that the structure of advanced education shape like a pyramid model. This is also the necessary result caused by internal stepwiseness and continuity of education.

The structure of advanced education is the concentrated display of adaptability and equilibrium of advanced education as well as the important factor for determining its service functions and cost effectiveness. In studying the structure of our country's advanced education, quite a few problems are found. Its layer structure is not reasonable enough with the primary type of schools being the four-year university and with fewer specialized schools which require shorter years of study; majors of study are too finely classified with a total of 832 majors in the previous two years in our country, which is the most numerous in the world; ratio is out of proportion with the phenomena of stressing science while ignoring liberal arts and stressing heavy industry while ignoring light industry. In order to create a new

stage for advanced education and establish an educational system with Chinese characteristics, the reform of advanced educational structure takes on a sense of urgency which deserves adequate attention.

In reforming advanced educational structure of our country, some of the measures taken by developed countries are quite worth borrowing, such as the clear yet strict and layered structure composed of junior college, general college and graduate students in the developed countries and the accredited degree system that corresponds with them. The lines between different levels in our country, however, are not clear enough; the junior college level education has experienced turbulent ups and downs that have caused chronic instability. The teaching programs of junior colleges are the concentrated version of those of college majors. Some of the cultivation programs for graduate students are the extension of college major. Also, the continuity between various levels of foreign countries is stronger. Their short-term university is equivalent to our junior college and in the U.S., France and Japan part of the graduates from these schools can transfer into senior years of corresponding majors in university to study. This measure is beneficial to selection of talents and upgrading of teaching quality, and our present junior college level education, however, has a sense of "Finality". Furthermore, the study form of short-term university in foreign countries is more flexible. They have implemented various forms of full-day, high-school, part-time, alternating co-op, etc., whereas junior colleges of our country adopt the singular full-day system.

#### IV. Rapidity of Changes in Contents of Teaching

In reviewing the history of education, it has always developed with the development of social production and science and technology. The development in social production and science and technology not only affects the property of education but also determines the contents, methods and means of education.

Engels had said as early as over one hundred years ago that: "The development of science has thus begun to stride forward, and this development is proportional to the square of time distance from its starting point" (6), and the development of science has totally verified this diagnosis. In the 20th century, especially since the 60's, the development of science and technology is extraordinarily fast and the total quantity of knowledge expand violently. According to the prediction of British technology forecaster Jamco Martin, mankind's knowledge doubled every 50 years in the 19th century and it doubled every 10 years in the 20th century, and presently it has reached the extent of doubling about every 3 years. American broadcasting educator Shelledy has estimated that if knowledge continues to develop at current rate, then 97% of the knowledge a child born today will have learned by the time he reaches 50 will have been discovered after his birth. The process for science and technology to materialize into direct production has been greatly accelerated, and the time interval from invention, discovery to application has become shorter and shorter. The fast-paced advances in science and technology will certainly bring about the rapidity feature in the contents of teaching of advanced education.

Undeniably, ordinary education also has the problem of constant change in its contents of teaching, the contents of teaching of ordinary education, however, are primarily the basic and classical parts of scientific knowledge, and their stability and durability far exceed those of advanced education.

Contents of teaching is the core for realization of educational goals and is the key to developing students' intelligence. In the process of introducing new achievements, new types of products, new forms of contents of teaching can talents who have been cultivated in science and technology re-cultivated. Presently, the changes in the world and the world have all put heavy emphasis on education. According to the prediction of Jamco Martin, the major contents of the

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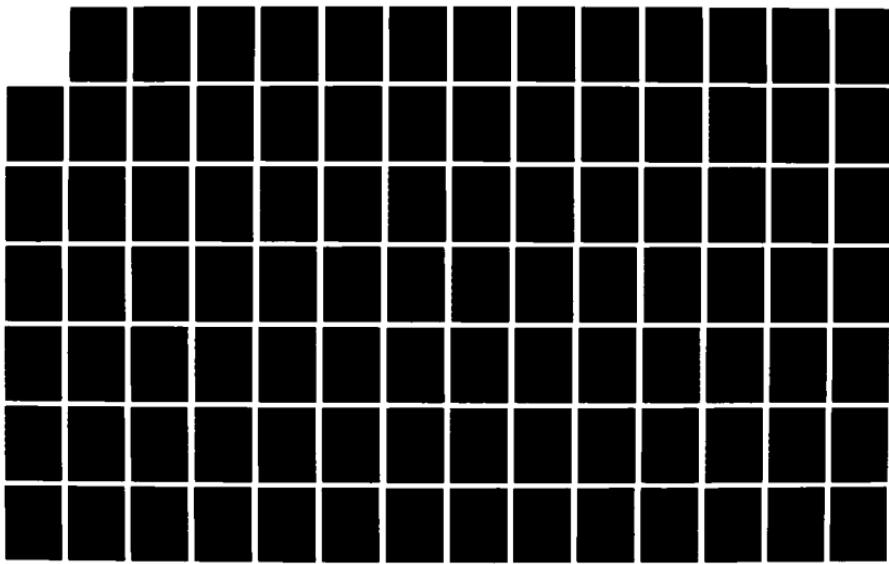
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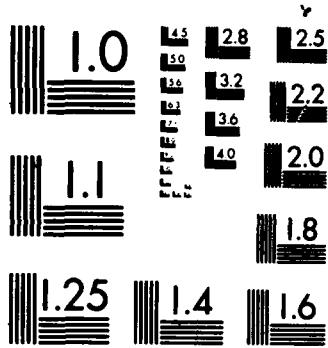
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Institute of Technology, etc., new major courses offered double every 17 years. The Soviet Union started to change to all new teaching materials in the 70's and in the recent 10 years various advanced schools have written 5,320 kinds of teaching materials.

Comrade Deng Xiaoping points out that: "Education must face the four modernizations, face the world and face the future." This is a fundamental guiding guideline for our entire educational undertaking. The "three faces" has set forth higher requirement for the quality of talents. As far as advanced education is concerned, to face the four modernizations we must realize the modernization of contents of teaching because it is the basis for cultivating talents who will adapt to the needs of the four modernizations and is also the important content of modernization of education itself; to face the world we must first understand the world, study the world to continuously absorb advanced scientific achievements of the world thereby making the talents we cultivate not only adapt to the requirements of the four modernizations but also meet the needs of fierce competition in the areas of science and technology and commercial goods in the international markets; to face the future we must be far-sighted to foresee the trend of development in science and technology and world economy and aim at advanced targets to bring our country to among the ranks of advanced countries at an earlier day. The important message given to us by the current new technological revolution is that a new situation will occur in the next few decades where new changes in social life will be brought about. The new technological revolution is a challenge for us and is also an opportunity. Whether the distance between us and advanced countries will enlarge or reduce, the key lies in utilization of opportunities and selection of countermeasures. Education commands important effects for our country to catch up with the world's advanced level. Comrade Deng Xiaoping had said that: "Our country must catch up with the world's advanced level, but where do we start? I think we must start from science and education." (7) The students cultivated by the advanced schools of our country will be the backbone for the construction of four modernizations and the vanguard in the new technological

revolution in the future. If the knowledge we give them lacks a degree of advancedness, then their starting point will already fall a great distance behind. Thus, the great undertaking of restoring China will be delayed, making the situation of relying on foreign science and technology worse by the day.

The quality of students cultivated through advanced education are affected by a variety of factors. Some people have proposed that the magnitude of teaching quality be determined by the "three materials" of schools and the "three qualities" of students. The so-called "three materials" are talent material, teaching material and equipment; and the "three qualities" are active quality, initiative quality and creative quality of student's studying. While we stress the importance of contents of teaching, we must not ignore effects of other factors.

"Textbook, textbook, the basis for teaching it is." Textbooks are the main body of contents of teaching and the basis for teachers to pass on the way of the saints and impart specialized knowledge; they are the starting point for students to inherit the knowledge achievements of previous generations. It is extremely important for teaching to have a textbook which includes basic discipline theories and basic knowledges and reflects the development of contemporary science and technology. Comrade Deng Xiaoping points out that: "It looks like teaching materials have got to be grasped from middle and elementary schools, and we have got to teach the most advanced contents. Of course, we should also not deviate from the actualities of our country!" (8) The construction of teaching material is a basic construction and is also a very demanding work. The current teaching materials of advanced schools have a lot of problems not only in contents but also in system. We should organize manpower for group attack and write new teaching materials that are scientific, advanced, systematic and suitable for the actualities of our country as soon as possible to solve the problem of backwardness of teaching materials.

(Editor in Charge Zhang Deyou)

## Literature

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- (2) Cai Keyong, "Brief History of Advanced Education", P30.
- (3) Engels, "Natural Dialectic", People's Publishing Company 1971 Edition, P30-31.
- (4) Engels, "Natural Dialectic", People's Publishing Company 1971 Edition, P172.
- (5) "Selected Works of Deng Xiaoping", P67-68.
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- (7) "Selected Works of Deng Xiaoping", P45.
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## AN IMPORTANT PATH FOR LEARNING

Staff Commentator

People's Daily News, 1986. 4. 1. 1

A few months ago eighty students from four military medical universities went to the frontlines in Yunnan for their internships. During the winter vacation, Beijing City Committee of the Communist Youth League organized college and university students in the capital city to separately go to frontlines in Laoshan, oil fields and scientific research bases for touring and learning. These college students met with soldiers, workers, farmers and scientific and technological personnel to experience the actualities of society and gained a lot, especially the gains in the thoughts area. Quite a few have found the true answers for "values of life". Some students have said thoughtfully: We must "emerge from selves" and strengthen the sense of responsibility toward society.

While at school, students should naturally concentrate on normal studies in school and concentrate on studying the books. Yet it is very fruitful and very necessary to seize various opportunities to understand society, learn from actualities and learn from the masses. College students today are younger at age and almost always go directly from the door of home to the gate of school, therefore lacking social practicality experiences. If he just closes the door to study books,

it is very easy to lose touch with the reality and the masses, and it will be difficult to profoundly comprehend and fully grasp some of the theoretical knowledge in the book. Thus, there is the possibility of being alienated in the society and some of his viewpoints are almost always unrealistic, even absurd. It should also be noted that, during the period from now till a relatively distant future, it will still be impossible to allow all the graduates from various levels of schools to advance into schools of higher levels, let alone all becoming Masters and Ph.D.'s. Whether receiving a higher or lower degree, eventually you will always have to take part in social implementation, and this implementation is absolutely necessary for cultivating any kind of talents. Therefore, while diligently studying knowledge in the books, young students must also be attentive to strengthening contacts with the actualities of society and learning in the giant classroom of social implementation.

To feel the actualities of society can help young students to correctly understand the times, analyze the situation and comprehend the big picture. As far as reform is concerned, it is the top duty of hundreds of millions of people in our country and is the most spectacular undertaking of our time. What reform needs the most is the creative spirit and some errors are unavoidable during exploring. Due to various historical and reality factors, reform will still encounter certain resistance. But reform is what people's hearts long for; it is the certainty of history and an irreversible, great trend. The masses have announced this historical voice from the heart through their earnest aspirations and active implementation. Young students must, in addition to study in the classroom, join the grand river of reform implementation of the masses in a well-planned manner then can they pinpoint the fast-beating pulses of our time and zero in the master direction without being confused by irrelevant matters that are merely dead grasses and floating algae. The college students from the capital city who participated in the social implementation activities have had profound recognition on this point.

Through participation of social implementation, the students can also supplement and reform themselves. They will understand the pursuit and yearnings of the people, hear the call of the motherland and time, and recognize the demanding yet great historical responsibilities on their shoulders. This is conducive to establishing a revolutionary point of view on life for the students and handling personal ideals and national needs as well as the relationship between personal interests and national interests correctly. Faced with the fiery struggle conducted by the masses for the prosperity of our motherland and well-being of the people, as well as the sacrificing spirit displayed in the struggle, if anybody stresses only personal preferences, pursues benefits and wages and refuses to go to places where the country has urgent needs, or fails to correctly assess himself, departs from the needs of the time and society while in hot pursuit of "self-designing", "self-implementing", etc., then how narrow and how despicable he must appear. Those young men who join the pulses of the masses will never mistake tiny wishes of the swallow and sparrow for the grand aspirations of the cygnuses and the eagles.

The implementation by the masses is a grandiose and lively classroom where a spectacular history is in the making. We hope more young students will study this course well. At the same time, we hope the schools, families and various sectors of the society will encourage and support students to grab various kind of opportunities such as production practical training, social survey, investigative studies, military training, etc. in order to study this course well.

## ON THE AESTHETIC EDUCATION OF ADVANCED SCHOOLS

Zhang Xinjian

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(Hefei), 1986. 1. 53-58.

### I. Importance of Aesthetic Education in University

Advanced school is a place where the state cultivates various scientific and technological talents and management talents. It should provide an all-around education for the students in order to cultivate them into a new generation with ideals, with culture, and with discipline. Aesthetic education at schools is to conduct the major components of an "all-around" education, and it is integrated into the entire educational process along with moral education, intellectual education and physical education thereby making those who receive the education become influenced through inspecting and experiencing beautiful subjects in order to reach the goal of cultivating the abilities to appreciate and create beauty. Einstein just loved music very much; between his studies of the inscrutable relativity, he used to play Beethoven's music on the piano and let his thoughts run free. The education Edison's mother gave him was to "mix education with appreciation" and let him appreciate music, art and literature. She used to take Edison out to appreciate the beauty of nature and read "Robinson Crusoe" to him in order to cultivate his interest in various

experiments. It was exactly due to this lively, visual education and influence that had successfully trained Edison's imagery thoughts and abundant imagination and established the good foundation which led Edison to the road of a fervent love for science and eventually growing up to be a great inventor. Aesthetic education should not be neglected in the education of people and this is an educational rule which has been verified by the growth processes of countless literati and scientists.

Marx had said that people create objects according to the rule of beauty and that the feature of mankind's laboring is the possession of aesthetic ability. Gorky had also said that people are artists in terms of their human nature. Therefore, from the very beginning the production activities mankind conducted had been closely connected with aesthetic requirements which had gradually made material production an art activity. Newly developed disciplines such as "industrial art", "technical aesthetics", "production aesthetics" and "laboring aesthetics", etc. are currently very popular, and they are exactly the products of emphasizing the combination of art and material-production. It has materialized the certain trend in the development of mankind history.

During socialist period, to promote the combination of art and material production is not only conducive to developing productivity for better displaying the social effects of art but is also capable of making the entire society possess more art flavors and a higher degree of spiritual civilization thereby pushing the construction of material and spiritual civilization to a high level. Therefore, aesthetic education for students should be stressed in college education in order to provide a strong reserve force for cultivating a large number of high-quality professional art talents and make the future builders of various professions possess excellent art quality and ability to create beauty. This quality and ability coupled with advanced science and technology will certainly become the strong resultant force for our

construction of high-level, socialist material and spiritual civilization. Therefore, to conduct aesthetic education in college for students is the urgent requirement for realizing the four modernizations.

As the level of material life upgrades, the feeling about beauty by people also becomes more and more profound and the pursuit for beauty becomes stronger and strong. Since the initiation of the mass movements of "Five Be's, Four Beautifications, Three Loves", effects are distinct and influences are profound, which so eloquently exemplifies this issue. However, as the open-door policy toward the outside world and flexible policy toward domestic matters are being implemented, and while learning advanced science and technology from foreign countries, it is inevitable that some of the bourgeois ideologies and life styles will also filter through. A few college students, due to the lack of necessary ability to distinguish, are either infatuated with the bourgeois decadent culture or admire the so-called bourgeois democracy and freedom, etc., and these are all topical displays of inability to distinguish ugliness from beauty or mistake ugliness for beauty. An important reason which causes this condition is that the school has neglected to conduct the necessary aesthetic education for them. Therefore, we should start with aesthetics to actively guide the students for conscious discussion and identification as to what truthfulness, goodness and beauty are, and what fakeness, badness and ugliness are. Then, combining with ideal, moral and discipline education and coupled with the establishment of correct views on the world and life, their effects will undoubtedly have vast, active influences not only on aesthetic education itself but also on the promotion of the entire political thought undertakings.

## II. Purpose, Duty and Content of College Aesthetic Education

To apply aesthetic theory of Marxism-Leninism and guide contemporary college students to establish correct aesthetic view, to enhance their aesthetic self-discipline and to cultivate their anti-corruption

ability are the purpose and duty of college aesthetic education, and are also the major contents of aesthetic education for college students.

Aesthetic view is the composite portion of man's view on the world and is the concrete materialization of man's view on the world in the implementation of aesthetics. It directly guides man's aesthetic implementation, limits man's aesthetic direction and is the soul of aesthetic activities. Aesthetic implementation has shown us that: since many college students have higher aesthetic ideals, clear Marxist aesthetic concepts and stronger aesthetic abilities, these have determined that their mentality for love of beauty and method for pursuit of beauty are admirable and are beneficial to the advances of mankind society. For them, the process of "enjoyment of beauty" is through diligent study and fervent laboring; the process of creating beautiful material and spiritual products is also the process of reforming nature, reforming society and constantly improving themselves "according to the rules of beauty". However, there are also some college students whose aesthetic ideals are not so admirable and more or less low-class stuffs have penetrated into their aesthetic-concepts. Thus, this has determined that their mentality for love of beauty and method for pursuit of beauty must also be low-class, and that individually they might even sink into the mud hole of bourgeois corrupted thoughts. Here, the reality of society has set forth a grave and solemn topics for us: in the advanced school education, aesthetic education must be included in the modernized socialist education in order to strengthen the Marxist aesthetic view and aesthetic self-discipline of college students, and this is a grave matter which requires immediate attention without any delay.

Aesthetic self-discipline generally includes aesthetic ideal self-discipline, aesthetic concept self-discipline and aesthetic ability self-discipline.

Aesthetic ideal is man's aesthetic assessment and aesthetic

pursuit of ideal living, ideal life and ideal objects as far as truthfulness, goodness and beauty are concerned; it is restricted by man's social ideals, and in a society with classes, it possesses vivid class characteristics. Today, the glorious duty history has bestowed college students is to progressively realize the four modernizations and to build our country into a highly civilized, highly democratic socialist country. This is the goal to struggle for and the most high-mended aesthetic ideal of contemporary college students.

Aesthetic concept means the viewpoints people hold when conducting aesthetic assessment on objective matters. In a society with classes, due to different class stance and viewpoint different aesthetic concepts are thus generated, and during aesthetic activities everything is certainly measured using the interests of one's own class. The so-called beauty, according to the aesthetic view of Marxism, means a beautiful life that is in line with direction of social and historical development. The proletariat are the most advanced class in mankind history and they represent the interests of the entire mankind. Therefore, only under the guidance of proletarian aesthetic concept can we objectively expose the nature of beauty and ugliness of everything, and thus through social implementation and while undertaking determined struggle against ugly objects can beauty be constantly created and the development of beautiful objects be advanced. This is the important content of aesthetic education for contemporary college students.

Aesthetic ability generally means the ability college students should possess to appreciate, assess and create. The aesthetic education in university must not only further cultivate the aesthetic appreciative ability of college students but should also stress the cultivation of their aesthetic creative ability. Beauty is the visual display in a certain subject of people's will, wisdom and power through implementation. Therefore, beauty is the verification of man's inherent power in a certain subject. Since man's inherent power differs vastly and is in a constantly developing and changing state, differences certainly exist in the beauty one creates as the visual display of

one's own will, wisdom and power. If one does not possess a specific aesthetic ability for art, then one can not grasp the insight of beauty thereby make an accurate assessment; conversely, one may mistake ugliness for beauty. This kind of lessons are also very common. Consequently, it is also very important to cultivate aesthetic ability of college students.

Especially in modern society, the development of science and technology and social life are extremely rapid, they practically change daily. The visual means of transferring information also correspondingly enjoy an extremely great superiority. This reality requires that our advanced schools should work hard to cultivate creative-type talents, i.e. talents with ability to appreciate beauty and create beauty, in order to adapt to the information times that is developing at a galloping pace.

### III. How to Conduct Aesthetic Education for Contemporary College Students

First, to conduct aesthetic education for college students must uphold the combining of aesthetic education with moral education, intellectual education and physical education; this is the important method for cultivating a generation of all-around, new persons.

After the October revolution, Lenin had proposed that, originating from the needs of socialism construction, education and the entire undertaking for training youth should be made to become the undertaking of communism morality for cultivating youth. According to Lenin's educational thoughts, the educational contents and duties set forth for the educational front by the Soviet Union at that time were exactly the combination a moral education, intellectual, general technology education, physical education and aesthetic education. In view of the educational development histories of the past, the present, foreign countries and China, those that stress the educational viewpoint of all-around development all contain moral education, intellectual

education and aesthetic education. The relationships between aesthetic education and moral education, intellectual education and physical education are very close. The completion of certain duties of aesthetic education can be promoted through moral education, intellectual education and physical education; certain duties of moral education, intellectual education and physical education can also be realized through aesthetic education. The foursome can not be interchanged, but they possess the effects of promoting and complementing each other.

Aesthetic education and moral education. Morality is one of the social ideologies and is the rule and confinement people who live together in a specific time must comply. In the socialist time, we promote the new moral trend which uphold the interests of the state and the people. However, the road of aesthetic education must be taken in order to pass this kind of moral trend down to the next generation.

In the relationship between aesthetic education and moral education, moral education should be the core and soul of aesthetic education. For if aesthetic education does not take moral education as the core and simple-mindedly pursues outer beauty, stubbornly demands nice clothings and comfortable living, then it can also lead youth down the skidrow. Therefore, in the process of conducting aesthetic education, it must also be combined with the political thoughts undertaking. Only when the thought level of students is upgraded can they better distinguish beauty and ugliness.

Aesthetic education and intellectual education. The primary goal of intellectual education is to impart knowledge and develop intelligence of students. Intelligence consists of various factors. In order to cultivate talents, the psychological functions of college students should be allowed to obtain an all-around and harmonic development. Among them, aesthetic education can utilize its own special way to promote intellectual education; it can cultivate student's strong propensity for learning and open up student's view; it can also enrich student's imagination and enhance student's observation ability.

Aesthetic education, however, can not be separated from intellectual education, for intellectual is the basis of aesthetic education and without intellectual education, aesthetic education can not be conducted.

Aesthetic education and physical education. Sense of beauty is a joyous psychological feeling and it can promote healthy development of human body. Bapolov once said that joy could make body develop and make body strong. This is to say that a person with beautiful soul and without various thought burdens and selfish ideas, and that he loves life, work and art, his feelings will be flowing smoothly, muscle relaxed, digestion normalized and heartbeat coordinated. These can all exert healthy effects on body. Although physical education is a kind of direct exercise for making body strong, its beautiful form is a delicate art all by itself and can be appreciated by people. Physical education classes can not only exercise one's body to make it strong but can also strengthen one's will and perserverance as well as cultivate one's high-minded style. For example, exercises such as long-distance running, mountain climbing, etc. can cultivate student's strong will and aggressive spirit; whereas exercises such as basketball, volleyball soccer, etc. can also foster student's spirit of cooperation and collectivism as well as excellent moral quality. Thus, combining physical education with aesthetic education can allow student to obtain a wholesome beauty in both physical and mental aspects.

Second, to combine professional features with the development of aesthetic education. For example, Chinese literature profession and art profession are both directly and closely connected to appreciation, creation and performance activities of liberal arts. College students with these two majors must receive education of beauty in art while studying at school, and after they take on jobs in the future they must conduct aesthetic education for the masses. Therefore, aesthetic education to them are not only directly related to the contents of their majors while studying at school but are also directly related to their work duties after graduation. Therefore, aesthetic education

should penetrate into the entire process of their studying. When students of Department of Chinese Literature study classical literature, foreign literature and contemporary literature, the process during which they obtain knowledge of associated works of writers is actually also the process during which the appreciation, analysis, judgement and comment of beauty are conducted, i.e. the process of receiving influence, nurture and education in the beauty of art. When teachers are teaching these major courses, they should use aesthetic method and visualized thinking to bring students into the state of beauty of art. In addition, certain weak linkages of these students with majors should also be noted; for instance, poorer understanding of natural knowledge, social practice, and science and technology, etc. This requires that holidays and extracurriculum activity time be properly utilized to selectively organize them to conduct certain necessary investigative studies or field trips and visits in order to supplement the insufficiency in knowledge. Tour is also another method, but it must be initiated from actualities.

Science and engineering majors and medical and agriculture majors deal with natural science. College students of these majors—almost always bury their heads in textbooks and research of references and literatures. Is there beauty in science? This is still a controversial issue among foreign and domestic aesthetes. Facts have shown that there is also beauty in science. If an outstanding college teacher wants to cultivate students' stable, professional wills and propensities, then he must not only be good at guiding them to master complicated scientific theories and knowledges but should also conscientiously guide them feel, experience and discover the beauty within science. The beauty of science is connected to the beauty of nature and life, especially, it is connected to the creation of new science. Students of science and engineering majors and medical and agriculture majors comparatively lack understanding of the beauty of art, and also lack the emotion and interest in aesthetics. Attention must be paid to guide them to read, under the premise of first studying major courses well, some famous books of the past, the present, foreign countries and China and

appreciate music and paintings, and also learn the art of traditional Chinese calligraphy and carving personal chops. Presently, science and engineering universities throughout the nation generally all offer course in "College Chinese Literature", and the students should study this course well. Do not treat this course as one with no significant importance, nor should it be limited only in upgrading students' reading and writing abilities, whereas it should be combined with aesthetic education and conducted simultaneously.

In addition to conducting aesthetic education according to the features of a major, various forms should be adopted to actively develop the lively aesthetic education activities. For example, organize departmentwide or universitywide amateur variety troupes, music bands, literature creation, evaluation groups, art clubs, photography clubs, track and field and ball teams, motorcycle teams, etc., and use holidays and vacations to hold various types of evening entertainment shows, poem-reading shows, concerts, painting and calligraphy exhibits as well as competitions of intelligence and sporting events, etc.

Third, actively develop aesthetic education activities of beauty of nature, beauty of art and beauty of social life. A qualified, all-around college student should possess an art appreciation ability higher than that of ordinary people. As far as students of Chinese Literature and art majors are concerned, they should also possess a higher level of art critique and art appreciation abilities, and be able to apply scientific art theory and aesthetic theory to conduct pertinent analysis and assessment on art works in the thought and artistry aspects. However, this kind of appreciation ability of the students can only be obtained through aesthetic education activities associated with beauty of nature, beauty of art and beauty of social life .

Natural beauty. Mountains, rivers, flowers, birds, insects, fishes, ancient relics, the seas, forests, the moon, etc. are all beautiful

objects created by nature which can make people overflowing with emotions, and filled with love for the motherland and for life, and make people admire the simplicity of nature. This is the best melting pot for the emotion of "truthfulness" among "truthfulness, goodness, beauty". Being able to recognize and feel the beauty of nature has tremendous motivation power for awakening people's bountiful imagination and undaunted implementation.

Natural beauty can bestow people a kind of spiritual enjoyment. This spiritual enjoyment comes from the realization of the colors, lines, music and the harmonies, symmetry as well as beat that are composed of these by one's senses about objects in the nature. After a strenuous learning, laboring session, to enjoy the beauty of nature can make one find everything fresh and new and feel refreshed. Like the welcoming pine tree of Huangshan, she is so graceful. With her body slightly extending toward the tourists, she looks almost like a refined hostess who is welcoming guests. With the blue sky of mother nature as backdrop and swayed by breeze, the rustling sound from her gentle movement makes one carefree and joyous and unable to stop praising.

Natural beauty can mould ones sentiment, purify ones emotion and produce an effect of ethical education. This is because some of the features of natural objects almost always resemble and coincide with certain features or certain aspects of man's social life, thereby causing one's association while appreciating and making it intermingle and mix to have an integral image of natural beauty in one's mind. Once this image of natural beauty is born, it can provide an unprejudiced appreciator with a kind of spiritual influence, encouragement and education. Comrades Zhu De and Chen Yi liked orchid, Comrade He Long loved red maple leaves, whereas Comrade Tao Zhu used an appreciative tone and style of writing to praise the integrity of pine trees. Such is expressing oneself through objects. As long as one is a revolutionary fighter, one can install in oneself lofty thoughts and sentiments while appreciating the beauty of natural sceneries and objects. By the same

token, as long as one is a laborer, one can certainly display one's power from the colors of spring, from the magnificent and beautiful mountains and rivers and from the roaring spectacles. Wonderful ideals are thus seen.

Natural beauty can foster and display the imagination and creative power of an appreciator. Every creation of mankind, without exceptions, draws support from imagination. The appreciation and creation of beauty invariably unify and proceed under the same thinking process. Whereas appreciation and creation are also invariably accompanied by will and inseparable from imagination. Therefore, the appreciation and creation of natural beauty can induce one's imagination power and enliven one's image thinking ability.

Beauty of art. The beauty displayed by art pieces is the result of attribute of objective world substances reflecting in one's mind. The creation of beauty by art pieces is the result of objective attribute of material life and natural sceneries reflected and proceeded through the author's mind. Therefore, in the area of beauty of art, music, painting, calligraphy, sculpture, dancing, drama as well as various literature pieces which have more perfect contents and forms have thus become people's best spiritual food. This kind of beauty of art directly or indirectly displays a kind of lofty spiritual realm and also displays a certain beautiful world or beautiful soul. Since the author is a person who possesses specific aesthetic ideals, he invariably follows the principle of beauty and sets out from his own aesthetic ideals when he creates to discover beauty in life, beauty in nature, beauty in society or beauty in man's disposition, and meanwhile he is not afraid to boldly expose the ugly and vulgar phenomena in life. Cui Yingying of the "Romance in the West Chamber", Bai Suzhen of the "Story of the White Snake", Jia Baoyu and Lin Daiyu of the "Dreams in the Red Tower" as well as Aunt Xianglin in Lu Xun's writings, Little Erhei in Zhao Shuli's writings, all these writings which use beauty as the subject of depiction have been able to give people aesthetic education because the writers have discovered beauty in life. As to Gao Qiu in

the "Water Margin", Wang Fengxi of the "Dreams in the Red Tower" and Master Lusi in the "Blessing", the authors criticize these characters and negate these ugly phenomena which are exactly for the purpose of affirming the positive and thereby at the same time also provide people with aesthetic education.

The formal beauty of art pieces is the indispensable condition of beauty of art. If the author has lofty aesthetic ideals but is without high-degree art self-cultivation, then it is impossible for him to truthfully depict beautiful things in life and it is also impossible for him to fully expose ugly things in life thereby making people utterly detest ugly things and praise beautiful things. Therefore, the contents of aesthetic education also include art self-cultivation and nurturing of formal beauty. For instance, Feng Qinglan depicted in the movie "Legend of Tienvuan Shan" was put in the opposite side of evil forces, in the perilous snowstorm environment, in a life of difficulty and hardship as well as in the harsh political struggle. She wore succinct clothes and was heavily nearsighted, but her soul was as clear and beautiful as crystal. If the author had not possessed high-degree art self-cultivation, how could he have displayed such a lofty yet beautiful image?

Beauty in social life. The contents of beauty also include various aspects of social life. In addition to satisfying the needs of people's material life, various productions must also satisfy people's demand for sense of beauty as much as possible and thus such is in line with mankind's nature of love for beauty which in turn makes people strengthen their interest and appeal in life. For example, residential building is primarily used for keeping wind and rain out and warding off the cold and heat, but it should also be artistically shaped and beautified as much as possible. Other than covering up body to keep warm, clothing, meanwhile, should also be pleasing to the eye, natural, neat and yet with slight variations. As to cooking, not only attention should be paid to nutrition and taste in order to satisfy biological demands but should also consider pleasant colors and abundant varieties

in order to satisfy psychological demands. It is thus clear that beauty of social life is also very important. The beauty of social life must first be reflected in the beauty of material products. the beauty of material products is displayed in a concrete, perceptual form and gives one an aesthetic feeling. Mankind's history is a volume of gigantic aesthetic history where mankind has created, by means of works handed down through generations, a world blazing with colors for itself. From the pyramids and the Great Wall of ancient times to spaceships, skyscrapers and super highways, all glitter with beauty of working wisdom without exceptions. Therefore, the praises and eulogies of work are also the main body through which art has been continuously expressed from ancient times to the present.

Social beauty is also displayed in the main body of social practice---beauty of human. The beauty of human is divided into inner beauty and outer beauty. The outer beauty of human is situated between natural beauty and social beauty, and has physiological and sociological aspects. The beauty of human body is a high-level form of natural beauty, and to beautify human body is not only a personal matter but also a major national affair. A person with a beautiful body form, well-proportioned bones, well-developed muscles, agile movement and is full of energy is the glitter of national spiritual civilization. Ancient Greece had had such role models. The beautifying principle for human's bodily beauty should vary from people to people. Putting on clothes and makeup must be beneficial to both physical and mental health, pay attention to the relationship between time and space, and conform with current fashion. Human beauty uses inner beauty as the leading role. This involves inner factors of human---intelligence, ability, thought, moral character, power and sentiment, etc. Beauty of soul is the core of beauty of life and includes beautiful morality, beautiful sentiment, beautiful ideals, beautiful personality and beautiful behavior, etc. People invariably display their own outstanding qualities, abilities and power in social practices and those who devote themselves to the progresses of mankind are the most beautiful people. As far as beauty of soul in the time of socialism is concerned, it is collectively

displayed in the "Three Ardent-loves". People with ardent love for the party, ardent love for the motherland and ardent love for socialism are those with the loftiest spiritual state, are a generation of new people who are nurtured by the thought of communism and will certainly be models of the "Five Be's and Four Beautifications". We can see the glitter of beauty of life in them.

In conclusion, college aesthetic education in its pattern should combine teaching activities of teachers in classroom with self-learning activities of students as well as with abundant and colorful extra-curricular activities, and among which special attention must be paid to displaying student's spirit of self-learning and intensive study to guide students to read and appreciate on their own. Great efforts must be expended to lively develop college aesthetic education thereby making it a kind of indispensable educational content and effective educational pattern.

(Editor in Charge Cheng Chi)

## INVESTIGATION OF THE EVALUATION METHOD FOR COMPREHENSIVE COST-EFFECTIVENESS OF ADVANCED SCHOOLS

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There have been some authors who have published their opinions on what economic indexes to choose in order to evaluate cost-effectiveness of advanced schools, and unnecessary details shall not be given here. This paper shall present a few comments, for the sake of discussion, on how to calculate comprehensive cost-effectiveness of advanced schools whereby providing comparison and evaluation among various advanced schools.

### I. Current Indexes and Methods Used for Evaluating Various Cost-Effectiveness and Their Limitations

Current assessing method for cost-effectiveness of advanced schools usually only assesses a single index and its method generally adopts the comparative analytical method, e.g. 1. to compare with historical index; 2. to compare with advanced index in the trade; 3. to compare with ratification standard. When the superior department in charge assesses and evaluates the cost-effectiveness of its affiliated advanced schools, it also frequently conducts comparison of single index effectiveness of various schools thereby obtaining results of

which advanced school has the highest effectiveness in what single index, which school has the highest effectiveness percentage over the previous year and which advanced school surpasses and fail to complete the effectiveness index ratified by the higher authority.

The aforementioned methods for assessing various cost-effectiveness is conducted on the basis of a single index; and therefore comparison can only be conducted for the same single index among various schools, whereas comparison of comprehensive cost-effectiveness index among various schools can not be conducted. So, it is not exactly reasonable and not quite comprehensive. For example:

1. Since the dimension, classification of disciplines, type of students, key and nonkey situations of various schools are different, their expenditures, etc. also should not be the same. When conducting intercollegiate effectiveness comparison, different schools should be ratified different quota standards for comparison thereby making it more reasonable. For instance, the annual average amount of expenditure shared by student at school A is 1,800 Yuans (1,860 Yuans were ratified by the higher authority), and it is 1,700 Yuans at school B (1,680 Yuans were ratified by the higher authority). If comparison is made just on the basis of actual index figures, then school B spends about 100 Yuans less than School A; if the ratified index figures of the two schools are incorporated, then its result is exactly the opposite.

2. Assessing single economic index is only capable of seeing the beneficial situation of a certain single index, yet not being able to reflect the comprehensive benefits of all indexes of the school. Therefore, comparison and evaluation of comprehensive cost-effectiveness between various departments, various regions and various schools can not be conducted, much less gaining a more full-scaled and practical overall evaluation on the comprehensive cost-effectiveness situation of various schools.

## II. Difficulties in Calculating the Comprehensive Cost-Effectiveness Based on Existing Assessment Index

The comprehensive cost-effectiveness of school, i.e. total effectiveness combining various items of assessment index, can not directly accumulate and compare the completed benefit values due to nonconforming computing units of various items of assessment index used to represent effectiveness, and this has brought about some difficulties in computation methods for calculating the comprehensive cost-effectiveness. For instance:

1. The units and their computation methods adopted by existing assessment index are given in the following example:

	Assessment Index	Unit	Computation Method
①	Ratio of planned no. to be admitted to actual no. admitted	%	Actual no. admitted/planned no.to be admitted
②	Ratio of year-end no. of faculty to established no. of students	Ratio	Year-end total no. of students/Year-end total no. of faculty
③	Annual average amount of expenditure shared by each student	Yuan	Actual annual amount of funding expenditure/Total annual established no. of students
④	Year-end fixed capital figures taken up by each student	Yuan	Total amount of year-end fixed capital/Year-end total no. of students
⑤	Year-end temporary funding payment taken up by each student	Yuan	Year-end total amount of temporary funding payment/Year-end total no. of students
⑥	Year-end material funding payment taken up by each student	Yuan	Year-end total amount of material funding/Year-end total no. of students
⑦	Percentage grown to be useful person	%	No. of outstanding, fair, above passing grade students/total no. of students in said year

(Standard for passing is determined according to different requirements; for instance, some schools require above fair grade for graduate students to qualify as useful person.)

⑧ Utilization rate of instrument equipment % Instrument equipments in use(piece)/No. of instrument equipment (pieces) in book

(Individual instrument equipment utilization rate, total instrument equipment utilization rate and instrument equipment in-good-condition rate can be separately computed.)

⑨ Offering rate of teaching experiments % Experimental items already offered/Experimental items supposedly offered

(Basic course experiments offering rate, specialized basic courses offering rate and specialized courses offering rate can be separately computed.)

2. From the features of existing assessment indexes to study their difficulties in calculating comprehensive cost-effectiveness. For example: ① unable to combine due to different computing units; ② relations between numerical values and effectiveness are different in that the higher the numerical values of some completed indexes are, the higher effectiveness they represent, whereas others represent the opposite; ③ numerical values of ratified indexes by higher authority are different; ④ weights between various assessment indexes are different.

### III. Computation Method for Comprehensive Cost-Effectiveness Index

In order to conduct education of comprehensive cost-effectiveness, the aforementioned indexes of various computing units must first be converted into indexes with unified comparability, then the comprehensive computation can thus be conducted. Now the preliminary concepts of computation are individually described below:

1. The numerical values of assessment indexes are converted into numerical values with unified definitions. Here the "unified" definition means, under specific labor consumption and specific labor share, the more labor results are obtained, the larger the expressed numerical values are and the better the effectiveness is. For example:

① For these assessment index numerical values that are already in line with the aforementioned definitions, it is not necessary to convert. For instance: the ratio of number of faculty to number of students, utilization rate of equipment, etc. are already in line with, under specific labor share, the larger the numerical values of labor results obtained, the better the effectiveness is. The actual numerical values can thus be directly substituted into the formulae.

② Those definitions that do not fall under ① generally belong to the labor, consumption, deposited labor share expended to obtain specific labor results; the less the expenses and the less the share are, the higher the effectiveness is. Since this kind of numerical value is the opposite of the aforementioned unified definition, and for this reason, conversion must be conducted. Take the annual average amount of expenditure shared by each student as an example, the less expenses each student spends, the higher the effectiveness they represent. This is not in line with the unified definition. Therefore, they must be converted into numerical values of labor results obtained through specific labor consumption.

Method of conversion: assume N is the specific labor consumption, labor share, then

To compute the number of students that can be cultivated according to actual amount of expenditure for each student =  $\frac{N}{\text{Actual amount of expenditure shared by each student}} \quad (\text{A})$

To compute the number of students that can be cultivated according to planned expenditure figures on each student =  $\frac{N}{\text{Planned amount of expenditure shared by each student}} \quad (\text{B})$

Actual index numerical value (A) / Ratified standard number (planned (B)) = % of number actually completed among the planned

$$\begin{aligned}
 (A) &= \frac{N/\text{Actual amount of expenditure shared by each student}}{N/\text{Planned amount of expenditure shared by each student}} \\
 (B) &= \frac{Nx_1/\text{Actual amount of expenditure shared by each student}}{Nx_1/\text{Planned amount of expenditure shared by each student}} \\
 &= \frac{1/\text{Actual amount of expenditure shared by each student}}{1/\text{Planned amount of expenditure shared by each student}}
 \end{aligned}$$

It is thus clear that the reciprocal of annual average amount of expenditure shared by each student can be selected to substitute into the formulae.

2. To solve for the % of actual numerical value taking up in the ratified standard.

(Greater than 100% indicates overfulfilling ratified duty, equal to 100% indicates just making ratified duty, smaller than 100% indicates failing to achieve ratified duty.)

$$\eta_i = \frac{\text{Actual numerical value}}{\text{Ratified index}}$$

$\eta_i$  represents % of ratified index accomplished (single index cost-effectiveness).  $i=(1, 2, \dots, n)$

Example is given as follows:

① School A's admission plan is 150 people, whereas it actually admits 200 people, then the percentage of ratified admission index accomplished by school A is:  $\eta = \frac{200}{150} = 133.3\%$ .

② The annual average amount of expenditure shared by each student is 1,700 Yuan at school A, whereas the ratified annual average amount of expenditure shared by each student is 1,860 Yuan at school B. Thus, take their reciprocals and substitute into the formula:

Percentage of average amount of expenditure for each student accomplished to ratified amount of expenditure for each student at school A is:

$$\eta = \frac{1/1,700}{1/1,860} = 109.4\%$$

3. Based on the magnitude of each index's effect, the weight( weighted factor) of each ratified index is independently determined and represented by  $A_i$ ,  $i=(1,2,\dots,n)$ .

4. Take the  $\%(\eta)$  of each single index actual numerical value taking up in the ratified standard and multiplied by the weighted factor of said index to obtain the % of plan accomplished after the single index is weighted, i.e. single index cost-effectiveness after being weighted and is expressed as  $A_i \eta_i$ .

5. After totaling up the percentage of plan accomplished  $A_i \eta_i$  of all single index after being weighted for a certain school and then divided by the sum of weighted factors to obtain the comprehensive cost-effectiveness  $\eta$  of all single index for a certain school

$$\eta = \frac{A_1 \eta_1 + A_2 \eta_2 + \dots + A_n \eta_n}{A_1 + A_2 + \dots + A_n}$$

$\eta$  represents the comprehensive cost-effectiveness of a certain school.

6. Again conduct comparison of  $\eta$  of each school and determine the ranking of comprehensive cost-effectiveness of each school based on the magnitude of absolute value. Now examples are given and listed in the following table(see previous page):

Comprehensive Computation of Cost-Effectiveness  
of Institutes of Higher Study

(1) 指 标	(13)					(21)					
	(14)	(15) <sup>甲</sup>	(18)(19)	(20)	指数(加权因子)	核定标准	实际数	实际占核定数百分比	指数(加权因子)	核定标准	实际数
(2) 招生计划与实际招生比例	0.5	(16) 160人	(16) 200人	133.3	66.6	0.5	(16) 200人	(16) 210人	105	52.5	
(3) 年末教职工人数与学生编制比例	0.5	1:2.8	1:1.9	67.8	33.9	0.5	1:2.8	1:1.6	57.1	28.5	
(4) 平均每生每年分摊开支数	3	(17) 1860元	(17) 1700元	109.4	328.2	3	1680	1500	112	336	
(5) 年末每生平均占用固定资金	1	(17) 18,300元	(17) 16,600元	110.2	110.2	1	18,300	18,300	100	100	
(6) 年末每生平均占用临时款	1	(17) 600元	(17) 600元	100	100	1	600	600	103.4	103.4	
(7) 年末每生平均占用经费材料	1	(17) 250元	(17) 210元	119	119	1	250	250	100	100	
(8) 万元以上设备利用率	1	60%	52%	86.6	86.6	1	60%	41%	68.3	69.3	
(9) 数学实验开出率	2	95%	84%	98.9	197.8	2	95%	96%	101	202	
(10) 成才率	2	97%	96%	101	202	2	97%	99%	102	204	
(11) 总计	12			1,244.3	12					1,194.7	
(12) 综合经济效益		103.7%					99.5%				

It can be observed from the above table that:

1. In view of the comprehensive cost-effectiveness (including weighted factors). The comprehensive cost-effectiveness index of school A is 103.7% and the comprehensive cost-effectiveness index of school B is 99.5%, which indicates that the comprehensive cost-effectiveness of school A is superior to that of school B.

2. In view of cost-effectiveness of single index:

Indexes of school A that are superior to those of school B include 5 items: admission index, ratio of faculty to established student, fixed amount of funding taken up by each student, material funding taken up by each student and utilization rate of equipments; indexes of school B that are superior to those of school A include 4 items: amount of expenditure shared by each student, temporary payment taken up by each student, offering rate of experiments and percentage grown into useful person.

Note: Based on different efforts caused by each single index in the department, the weighted factor of each department at each school also varies. the weighted factors (weighted between each single index) of

school A, B in the above example are assumed the same.

Key: (1) Index; (2) Ratio of admission plan to actual admission; (3) Ratio of year-end no. of faculty to student establishment; (4) Annual average amount of expenditure shared by each student; (5) Year-end average fixed capital taken up by each student; (6) Year-end average temporary payment taken up by each student; (7) Year-end average material funding taken up by each student; (8) Utilization rate of equipment costing over ten-thousand Yuan; (9) Offering rate of teaching experiments; (10) Percentage grown to be useful persons; (11) Total; (12) Comprehensive cost-effectiveness; (13) School A; (14) Coefficient (weighted factor); (15) ratified standard; (16) People; (17) Yuan; (18) Actual figure; (19) Actual  $\eta_i$ , taking up in ratified figure; (20) Actual % taking up in ratified figure after being weighted,  $A_{i\eta_i}$ ; (21) School B.

#### IV. Areas That Await Further Inquiries

The above-described evaluation method is a kind of method for direct investigation of cost-effectiveness of single and comprehensive indexes of various schools of advanced study, and its features are: ① To combine associated assessment index in areas of labor results, labor consumption and labor share with index standard ratified by the higher authority and with the weights between various indexes, then through the application of a method with unified definition to combine all the assessment indexes of a school and more reasonably and comprehensively reflect its total effectiveness; ② Convenient for assessing and evaluating single and comprehensive cost-effectiveness between various responsible departments, various regions and various schools; ③ Aiming at different cost-effectiveness caused by various assessment index on schools to consider weight(weighted factors) elements between various indexes; ④ Aiming at different concrete situations such as dimensions, disciplines, etc. of various schools to consider factors of ratified standard indexes.

Since the magnitude of numerical values of ratified standard indexes and weighted factors can directly affect the magnitude of comprehensive cost-effectiveness, the determination of ratified standard indexes and weighted factors must be cautiously considered and thoroughly measured so as to be close to being reasonable as possible. Also,

revisions are constantly being made during practice to perfect them with each passing day.

Since the quality of student upon enrollment is different, and what is more, the teacher's grading standards among various schools and various majors are different, there definitely exist limitations in the above computation of percentage grown into useful persons. As to the issue of how to correctly and comprehensively assess quality of student, it still awaits further inquiries.

The assessment indexes continued to be in use at present are only limited in the teaching area, and the cost-effectiveness in the areas of science and technology has yet been touched upon. Advanced schools should not only be teaching centers but also scientific research centers and therefore the scientific research benefits should also be included for assessment and evaluation. About this area still awaits further probing.

Summarizing the aforementioned, the method for evaluating comprehensive cost-effectiveness of advanced schools is an all-around technical method for evaluating school's cost-effectiveness. It not only reflects total effect but can also, from among the cost-effectiveness of single index, determine difference, discover advancedness, expose existing problems, propose improvement measures and manage and utilize educational fundings well to make funds bring greater benefit into play. In the evaluation method of comprehensive cost-effectiveness, the determination of coefficients (weighted factors) and the application of said method on enterprises and other sectors still require further probing.

## HUMBLE OPINIONS ON ESTABLISHING TWO KEY RAILROAD UNIVERSITIES

Jiao You

People's Railway (Beijing), 1986. 3. 28. 4.

In the 1985 conference of entire railroad educational work, the party unit of the Ministry of Railways clearly proposed again that "the Transportation University of the southwest and the Transportation University of the north must be established to be nationally first-rated universities before 1990." This is a fighting call to restore the railroad advanced educational undertaking which is not only a gigantic motive power for the railroad advanced educational front but is also a very heavy pressure. Some of the immature views on how to realize this strategic goal of the party unit of the Ministry of Railway are hereby presented for the sake of discussion.

I. To unify perception and to look inward. After the Third Meeting of the Eleventh Central Committee Plenary Convention of the party, especially after the Twelfth Party Congress's putting education as the strategic key for development of national economy, the leadership of the Ministry of Railways has enhanced its guidance on educational undertakings, greatly increased investment in advanced education, allocated a specific amount of foreign exchanges to sponsor teachers for advanced studies abroad, and purchased imported equipments, etc. These are extremely beneficial external conditions for restoring railroad

advanced educational undertakings, and there should be an unified perception on this from top to bottom in order to thoroughly convert sentiments of looking upward, complaining and loafing existed among part of the cadres in leading positions, experts and professors. They, rather, should stimulate their own spirits, turn their eyes inward, immerse themselves in hard struggle, tap their own potential and work hard to bring about an upswing in railroad advanced educational undertakings.

II. To clearly plan top priority and meticulously lay down the "Seventh Five" plans. Planning is the most important means to strengthen the macroscopic leadership, and the "Seventh Five" plans should be meticulously laid down according to the strategic goal of the party unit of Ministry of Railways which demands that Transportation University of the southwest and Transportation University of the north be established to be nationally first-rated universities. The chief implication of running railroad advanced schools well is to run the two Transportation Universities well, and if we fail to establish the two schools well, then there is no hope for the railroad advanced educational undertakings. We should do all we can to run the eleven railroad institutes well, and if we fail to run these institutes well, it will be our responsibility; but if we fail to move the two Transportation Universities forward, then we must bear grave historical responsibility; if after the necessary external conditions are created and the two universities themselves fail to move forward, then the leadership of the two schools must also bear historical responsibility. Therefore, we must treat the realization of the strategic goal proposed by the party unit of Ministry of Railways for the railroad advanced educational undertakings as the chief duty of the "Seventh Five" plans. The two universities should become the backbone forces of railroad's advanced schools, yet they are connected to the other nine institutes and all eleven institutes are "eating" out of "one pot". Drawing up plans for the two universities will certainly involve interests of immediate concerns of the nine institutes. Therefore, Bureau of Education and the eleven institutes must all use a common thought to guide

the laying down of "Seventh Five" plans. The two universities "must be established to be nationally first-rated universities," and there will be no restoration of railroad's advanced educational undertakings. This must become the consensus and criterion of action for various levels of leadership, cadres and faculties at the front of entire railroad's advanced education. The two universities must present a more advanced, scientific and feasible "blueprint" of first-rated university and organize forces to assure its realization; the other nine institutes must all adopt pragmatic measures to support the operation of the two universities, especially in the areas such as school establishment standards, equipment investment, going abroad for advanced study, utilizing foreign exchanges, etc. will all have to take a proper "back seat". Looking from a certain perspective, without support of the nine advanced institutes the two universities will be hard pushed to achieve the strategic duties set forth by party unit of the Ministry of Railways. Conversely, if the development of railroad's advanced schools during the "Seventh Five" period still adopts the guideline of advancing side by side, then although the actual strength of each school has all been considerably enhanced after five years it is very possible that the status of railroad's advanced institutes in the nation is still unable to bring forth outstanding schools, outstanding disciplines and outstanding results (scientific research, talent results).

III. To promote strong points and avoid shortcomings in order to set forth a struggle "blueprint" of first-rated university that is rich in its own characteristics. To operate school requires layered efforts is not an issue which needs continued discussions any more, whereas it is an issue of practice. But schools within the same level do not need, and are also impossible, to be established into one model and one specification, they, however, should be run according to the position said school occupies within the nation, the ministry and the region as well as the school's history, duty, conditions, specialties, etc. To promote strong points and avoid shortcomings, to stress key points and to concentrate resources so that the school will attain its own characteristics. A first-rated university does not mean that all its departments

laboratories, etc. are first-rated. There are also considerable differences between various majors, laboratories, etc. of those recognized first-rated universities in our country. Therefore, when determining struggle "blueprint" of the two universities the Bureau of Education and faculties of the two universities must all liberate their thoughts and be inspired with enthusiastic spirit to earnestly analyze school situations throughout the entire railroad system and the nation, and identify their own superiority as well as accurately select overtaking goals in several areas in the effort to do all they can to make those selected disciplines of their schools become part of the ranks of first-rated universities and gain recognition of the society through five years of hard work. It is not necessary, nor is it possible, for us to fetter ourselves by indiscriminately adopting the model and specifications of Qinghua and Beijing Universities. Because to both the state and Ministry of Railways, this is beyond their power.

IV. Advanced schools must establish a good school spirit. Schools are an important position for constructing spiritual civilization and should make contributions in the construction of spiritual civilization. In the education of constructing good school spirit and conducting the "Four Be's", ideal disciplinary education and style of study education must be especially stressed, for without these two items it is very difficult to establish a good school spirit. The effects of party and league must be brought into full play and the effects of old teachers and key middle-aged teachers must also be given free rein. During the process of thought educational undertakings, they will have a kind of special, effective influence. In addition to emphasizing counseling and education, strict management must be stressed and means such as commendation, criticism and even disciplinary punishment, etc. must be well applied. Behaving in a lax, undisciplined way and being casual will not bring about establishment of a good school spirit, and will also fail to train a good team.

V. Accurately select breakthrough point for overfulfilling the quota and be determined to establish focal disciplines well. The level

of first-rated university should concentrate primarily on displaying the establishment, development and the results obtained of the school's focal disciplines thereby becoming the recognized education center and scientific research center of a certain discipline by the society. We must immediately and assertively select focal disciplines to be the chief struggling goal of establishing first-rated university.

First, when determining focal disciplines, consideration should be based on the demands of railroad undertaking development on two areas such as education and science and technology as well as developmental levels of current academic disciplines to make requirements and possible gains more compatible.

Second, the two universities in fact already have a group of disciplines and scientific research graduate schools with better basis, have academic backbones with higher level and academic teams which cooperate and coordinate, have modernized experimental equipments with significant foundation and have closer relationships with the society and railroad enterprises. Their teaching and scientific research results have already gained specific influences in the society and even internationally, and attracted considerable attention. But since departments, sections and graduate schools all want to be in the position of "dragon head", the leadership has also found it difficult to handle and make decision. In short, "unable to settle" causes the situation where all disciplines have already possessed the conditions to be granted the authority to issue doctoral degree yet none of the disciplines are able to sit in the position of "dragon head" in the school. The problem of establishing focal disciplines have been talked about for seven, eight years and there are no objections from top to bottom, whereas in fact several promising disciplines almost still set off from the same starting line as other disciplines. The leaderships of the two universities must be able to tolerate gossips coming from all directions and bravely shoulder the responsibility to determine focal disciplines of the two universities as early as possible.

Third, adopt the method of combining the leadership and masses. Just like reviewing the issuing authority of unit, the departments and sections of the two universities can submit request to be listed as focal disciplines of the school and after listening to extensive opinions of various experts the leadership will make the final decision and include them in the "Seventh Five" plan of the Ministry of Railways and the two universities.

Fourth, if by 1990 the two universities both have six, seven disciplines that are well-known in the society, then the two universities should selectively stress the upgrading of construction and replenishment of three, four disciplines within two, three years. Within two, three years of the completion of the "Sixth Five", the establishment of two, three disciplines can then be grasped.

Fifth, focal disciplines should have their own construction plan including accurate selection of scientific research direction. Several focal subjects with finding solutions for major railroad technical and economical problems as goals must be grasped to actively create tentative plans for conditionally cultivating graduate students as well as create tentative plans of construction goals such as faculty ranks and laboratories which are the struggling goals that will produce talents and results. Without high-level theoretical research, high-benefit scientific and technological results and high-quality graduates, then this focal discipline will not be recognized by the society.

Sixth, in order to assure the moving forward of focal disciplines, other disciplines at the two universities must also adopt active measures to give support, and may even have to make necessary "sacrifices". Naturally, as far as leadership is concerned necessary conditions must also be created for the development of these non-focal disciplines, and the fundings appropriated by school for equipment, scientific research, etc. should be increased somewhat every year; and in later years when extraordinary achievements are being accomplished, support should also be given. Of course these disciplines themselves

should step up their outward development to win over foreign aids for furthering the construction of a said discipline. Disciplines should be managed with vigor and disciplines with vigor will invariably gain outside supports of various forms. The non-focal disciplines in connecting society and serving the four-modernization of railroad should work hard to open up new roads and stand out soon; after three, five years of great efforts and based on needs and possibility they could strive for being upgraded to focal disciplines of the school.

VI. Realistic support must be given to focal disciplines. The two universities must rely on experts to set short-term and long-term scientific research directions. Experts from within and outside the university must be invited to assist in the review of laboratory construction plans, including introduction of foreign equipment. As the scientific research center, experimental equipments can be more advanced and more complete. The Ministry of Railways must appropriately amass certain amount of investment to assure that the laboratory construction plans already reviewed can be achieved. In order to accelerate the construction of academic echelon the demands of these disciplines must be satisfied as top priority when arranging for plans of advanced studies abroad, i.e. in addition to selecting small number of fifty-odd years old academic key members for advanced studies abroad, emphasis should be placed on young- and middle-aged teachers of forty-odd, thirty-odd and even twenty-odd years old. A batch of personnel with correct thinking, better basic knowledge, ability to work hard and ambition must be selected and sent as a group for advanced studies abroad. After three, five years of great efforts an academic echelon having significant level and reasonable structure- can be formed relatively quickly. In short, in the next few years other disciplines and schools must all temporarily make way. The two universities should also be determined to properly deploy some teaching and scientific research key members and hire some concurrent professors to replenish and strengthen the faculty ranks of focal disciplines so that it will be beneficial to upgrading teaching and scientific research levels relatively quickly in a short period of time. The two universities and

Bureau of Education must periodically inspect the work of focal disciplines in order to locate problems and assist in finding timely solutions.

VII. Step up the growth of young- and middle-aged backbone teachers and grasp the establishment of academic echelon with good planning. In order to establish first-rated university and focal disciplines, the key is that the cultivation work of faculty ranks must be grasped with even better planning. In recent years, a great number of young- and middle-aged mainstay teachers who are working in the front line of teaching and scientific research at schools have already gained eyecatching successes. But in establishing faculty ranks, there still exists a certain degree of drifting along. In order to change this situation attention must be focused on breaking the thought of promotion based on seniority, which exists rather commonly in advanced schools, and overcoming the abnormal feelings, which exist among part of the teachers, of jealousy toward decent and competent colleagues as well as not wanting to stand out. The spirit of "human-ladder" and solidarity must be vigorously promoted, and a group of the second and third echelons must be carefully selected and meticulously cultivated to step up their growth. The decision on echelons must fully respect the opinions of academic leadership; Party Committee Secretaries and the presidents must get involved personally and join the departments and sections to study the decision department by department. The growth of echelons primarily bases itself upon domestic resources, upon teaching and scientific research practices; however, it is indeed necessary to create certain advantageous conditions such as sending them for advanced studies to upgrade themselves, allowing them to attend various academic and technical conferences and inviting them to participate in major scientific research projects. The "human-ladder" and advisory effects of seasoned experts must be brought into greater play. The teachers of the second and third echelons must all draw up their plans for further studies and work hard to obtain real accomplishments. The evaluation of departments and administrative branches must be enhanced; if necessary, the echelon list can be

appropriately modified with additions and eliminations.

VIII. The scientific research undertakings at advanced schools must be actively conducted to better serve the modernization of railroads. In order to better carry through the guideline, education must have "three faces" and "railroad education must serve for the construction of railroad modernization, construction of railroad modernization must rely on railroad education", advanced schools must vigorously strengthen scientific research undertakings, must further change the situation of "closed style" scientific research. Based on the arrangement of educational undertakings, more energy must be squeezed out to launch scientific research undertakings. Teachers should be encouraged to get out of the gate of school and select scientific research topics through multiple channels. In order to help sustain the two universities, the Ministry of Railways must provide some ministry-level scientific research topics that are suitable for school to conduct at school and let it be in charge, or certain items are selected from the scientific research topics submitted by focal disciplines and then included in the scientific research plans of the ministry. Schools are vigorously encouraged to look for topics in the railroad enterprises. The scientific research plans of schools must have reasonable topic proportion; in addition to basic disciplines and teaching research items, topics of applied science and topics which directly serve the construction of railroads should take up the majority of items planned. Setting a reasonable proportion is beneficial to strengthening macroscopic control. Schools must coordinate the scientific research undertakings of departments and scientific research institutes well and pay special attention to organizing teams for some key topic groups. The phenomenon of "internal attrition" within groups must be avoided, and Party Committee Secretaries and presidents must act directly if necessary to do the work of uniting and coordinating well. Comrades in the logistic systems and factories affiliated with schools must maximize their efforts on doing the logistic work for scientific research well so as to eliminate the fear of scientific research personnels about troubles back at home. Scientific research

coordination within the school must be vigorously promoted to further the formation of a combined body of teaching, scientific research and production and make them bring their effects that are full of energy into play in the assault on science and technology.

IX. Enhance the construction and management of laboratories and bring the effects of experimental center into full play. Corresponding to the needs of focal disciplines establishment and vigorous development of scientific research, the two universities must establish several experimental centers that possess preliminary national standard and equip them with necessary high-tech instruments, including the necessary imported equipment. The purchase and management of experimental equipment must be enhanced. Overall consideration must be performed for the layout of high-standard laboratories and duplicate construction of identical models must never be done, especially for those high-tech and imported equipments that exceed a specific amount of fund the general rule is not to purchase a duplicate set if utilization does not exceed load.

X. Utilize the funds for infrastructure facilities and replacement investment of schools wisely. When laying out infrastructure construction plans, the construction at the two universities must be classified as the key among keys, and other institutes are temporarily being arranged according to "comfortable level". At present, when drawing up annual infrastructure construction plans, it seems that more emphasis is still being put on arranging investment for infrastructure construction than on investment for equipment. The reasons which cause this situation are, first of all, that the thoughts of top and bottom (Education Agency and schools) are not unified, and the schools are invariably fighting for more infrastructure construction investment while paying inadequate attention to conduct laboratory construction well. Secondly, the standards (quota, pricing) for infrastructure construction have been gradually upgraded thereby increasing the investment in infrastructure construction. When determining the total areas of school infrastructure construction, the original infrastructure

construction quota set by the Ministry of Education should still be adopted, whereas the standards for buildings such as laboratories, libraries, etc. used for direct teaching purposes can be properly loosened somewhat; in consideration of various other factors the additional areas can be calculated separately later. We must be concerned with the life of the masses and improve their living conditions; however, under current financial condition the improvement's unlikely to be too significant and too quick. The living spaces for faculty and students can in general be slightly higher than the average level of local schools, and for a few professors and experts, their housing problems can be handled as special problems. Auditing the utilization and management of school-use buildings should be treated as an important content for evaluating the effectiveness of infrastructure construction. There is also the timing issue of "reaching goal" in the undertakings of infrastructure construction. Leadership in the Ministry had required that each school complete school construction missions whose scopes had already been finalized, and in view of the excessively heavy school construction duties during the "Sixth Five" and "Seventh Five" periods and considering the different duties shouldered by each school as well as factors such as investment, construction,-etc. the "reaching goal" timing of infrastructure construction for each school appears capable of being flexible in order to ensure diversion of more investment for the successful construction of the two universities. For this reason, first the construction of the two universities should be properly arranged. Second, infrastructure construction of other institutes must follow the construction of the two universities and the growth rate of admission can even be slowed down if necessary.

ESTABLISHING THE EXCELLENT COMMON PRACTICE OF HARD WORK AND PLAIN LIVING AMONG COLLEGE STUDENTS (EDITORIAL)

China Education News (Beijing), 1986. 4. 8. ①

It has been for some time that the common practice of fortitude and austerity among a few college students has been thinning out. For example, the phenomena such as wasting food, being abusive about public properties, etc. are quite common; bad practices such as being excessively preoccupied about clothing, showing off wealth, etc. have increased somewhat; some of the students have acquired the thought of enjoyment first and despising manual labor; individuals ignore school work and find ways to make money in the pursuit of enjoyment without hesitation, some even slide into the mud hole of stealing and robbing. The above-described situations are not in line with the spirit and style college students of our country should have; they run counter to the education guidelines of socialist university and deserve full attention, and we should work hard to correct them. Cultivating the common practice of hard work and plain living among college students should be treated as one of the important contents of political thought undertaking at advanced schools and as an important aspect for establishing the excellent school spirit. Through enhanced thought education and discipline, through linkages such as social implementation, labor exercise and military training, etc. to make college students possess truly superior quality of fortitude and austerity, having deep love for

labor and the working masses.

Why are college students required to work hard and live plainly? First of all, it is based on national conditions. The economic development level of our country is still rather low and the lives of the majority people are not well-off; in the villages the basic problem of having enough to eat and wear has not been solved well for a few people. To build a modern, strong socialist country requires that the vast number of young people and everybody else in the country struggle and work for several decades; therefore, college students must be required to have the style of fortitude and austerity. This is required for now and several decades from now the same will still be required. Secondly, college students are in the stage of learning and preparing for work; they have not created wealth for the society. Their studying opportunity and living conditions are provided by the state and the people after overcoming numerous difficulties; co-operation programs and scholarships are just supplementary measures. College students should treasure very much the hard-earned learning opportunity and consciously save expenses thereby making them not forgetting the great trust of the people, understanding their own historical responsibility, and studying and pursuing advances in thought more diligently. Thirdly, one can not possibly become a truly useful person without expending a great amount of hard work and the toughening through numerous difficult conditions. Whether in ancient time or today, in foreign countries or China, many outstanding people who have gained significant achievement in school work and career have all worked hard through utmost fortitude in an extremely difficult environment; whereas those who have enjoyed high position and lived in ease and comfort since childhood are often the most useless.

To cultivate the style of working hard and living plainly for college students requires proper demands and correct method to guide them well. As the construction of the state develops and the standard of living of the people upgrades, the living conditions of college

students will also gain corresponding improvement and this is natural. To criticize them just because they eat and dress a little better is the way of "leftist" simplification which should never be repeated. To promote hard work and plain living of college student does not mean not to assure that they get sufficient nutrition, have wholesome art and entertainment activities, and good studying and living environment. On these aspects, we still need to continue working hard for their improvement as the national economic conditions improve. We advocate that college students dress clean and in good taste and behave in a civilized manner. Work hard and live plainly should not be interpreted as eating the worse food the better, dressing in the more beatup clothes the better and behaving the more vulgar the better. As far as the clothing style of students is concerned, we need not interfere as long as it does not hinder school spirit. What we must object to are the thought and behavior of squandering, pleasure as top priority and reaping without sowing as well as philistine and low-class diversions and entertainments. We should conduct patient and careful thought education even for those students who have these problems.

To cultivate the common practice of working hard and living plainly for college students requires coordination and support of the parents of students. Many parents economize on food and clothing and endure all kinds of hardships to secure as much as possible the living expenses for their children while attending schools, and wholeheartedly hope they become useful persons. But what kind of useful person their children should become and how they can become one must be considered. Looking from history, different classes have had different demands for their children in different times. In the new period of socialist modernization construction of our country, the parent comrades of college students not only have the responsibility of supporting their children economically, but also have the responsibility of educating them to work hard, have independent spirit and walk the road of combining with the workers and farmers so as to experience and grow during implementation. Thus, they will be able to contribute toward the four-modernization construction of the motherland. We must absolutely not spoil and

dote on our children lest things should turn out against our wishes by producing, after great effort, a bunch of "proletarian spoiled sons of rich families" which is neither beneficial to the state nor a great honor to the family.

Relying upon education and restraint of working hard and living plainly for college students is not enough; it must also depend upon strict self-demand, mutual influence and assistance of the vast student bodies. Students from economically rich families should not take the lead to parade their wealth, and students from economically difficult families should not try to keep up with the Joneses either. Heroes ever since ancient times have always been open and sincere, nor have warriors ever cherished their reputations. College students with great wills should take pride in being thrifty and simple, be ashamed of being extravagant, despise ostentatious pleasure, establish far-reaching ideals and career pursuit, and prepare to shoulder the missions bestowed onto them by history.

Let us hope that the campuses of our universities are forever filled with the excellent common practice of hard work and plain living.

BRIEF DISCUSSION ON THE ADJUSTMENT AND REFORM OF MAJORS IN  
ADVANCED EDUCATION

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The establishment of majors is the basic construction of advanced education with an overall importance; it is directly related to the developmental direction of advanced schools. To establish reasonable structure of majors has important significance to reasonable utilization of talents and the development of national economy and scientific technology. The fundamental symbol for measuring whether the structure of majors in advanced education is reasonable or not is whether structure of majors is compatible with national economic structure and social developmental needs. The establishment of majors in advanced schools of our country, due to various reasons, has long been focused only on the establishment of majors of science and engineering disciplines, and ignored the development of literature, law, business and economy majors, causing serious unbalance in the discipline ratio. Among various engineering majors, the emphasis has been on heavy industry while overlooking majors such as food industry, light industry, civil architecture, etc.; within agricultural disciplines, there are more planting and breeding majors while the diversified economy products processing and storage, generalized utilization and services for goods and economy majors are less; among the existing art disciplines,

large art majors such as literature, history, philosophy, etc. are separated from reality, and the weights of applied art majors are too small. During the "Seventh Five" period, there must be planned adjustment and reform with goals for this unreasonable structural establishment of majors to make the talents cultivated by advanced schools not only adapt to the needs of social and economic development in quantity but also in quality and in specifications.

#### I. Establishment of Majors Must Adapt to the Needs of National Economy and Technological Reform

To conduct technological reform of existing enterprises is the basic approach to accelerating the modernization of national economy. The existing technical equipment of our country is obsolete and the production technologies are backward, making the task of technological reform more difficult. Take the province of Shandong as an example, according to the investigation on 540,000 pieces of equipment among 14 trades in the entire province, 77% belongs to the level of the fifties, 19% belongs to the level of the sixties, and only 4% belongs to the levels of the seventies and eighties. Quality of product is poor with few varieties, low demand and little competitiveness. Among the 18,000 odd major industrial products in the entire province only 2.6% reaches international standards; the total value of foreign exchange from export of industrial goods only takes up 6% of the total industrial gross product; gross product of new products above province-level only takes up 5% of the total industrial gross product. The technological reform of national economy urgently need us to conform with the developmental trend of new technological revolution, remould traditional industries thereby making traditional industries capable of progressively transferring to new technological bases. Therefore, establishing majors in advanced schools should not only take the generalized majors that are urgently needed by national economy as key points, but must also pay attention to establishing newly developed disciplines and peripheral disciplines.

## II. Reform Needs of Industrial Structure Must Be Adapted to

Within this century, as the economy develops, a fundamental change of the industrial structure of our country will occur and the entire industrial structure is developing toward the trend of becoming "lightened" and "softened". Among the weights of industrial structure in villages township enterprises such as industry, business, architecture, transportation, services, etc. will enjoy greater growth, and the coastal regions will form an industrial structure of "trade, economic and agriculture" type. Industry will gradually form a full-scaled development of light and heavy industries and an industrial structure of placing dominant professions as key points. It is estimated that by the end of this century, sectors such as food, light industry, foreign trade, building material, chemical engineering, energy source and tourism, etc. will become dominant professions with the largest gross product in the entire country, and electronic industry and newly developed industries will also rapidly develop into important industrial sectors. According to this trend, the adjustment and reform of majors in advanced schools must adapt to future industrial structure. Not only majors which provide talents for the reform of the first and second industries must be established, but majors which provide talents for the third and fourth industries must also be quickly developed.

## III. Establishment Needs of Spiritual Civilization Must Be Adapted to

To build a highly democratic, highly civilized socialist modern country is the overall mission of the party and state in this new era. We should set off from this goal and specifically study the adjustment and reform of art majors according to the interpenetrating and intertwined trend of social science and natural science. In the past the state had not proposed the requirement that all cadres be professionalized and specialized; the knowledge structure of social science talents has been singular with advanced schools generally establishing majors according to certain basic disciplines such as literature, history, philosophy, economy, law, etc., and this is incompatible with the quality structure and social science talent specifications for new type of cadres in the new era. Therefore, when adjusting the

establishment of majors of art discipline the effects of art discipline in the two civilization constructions must be brought into full play to enhance basic disciplines and actively develop the discipline of applied art.

The adjustment and reform of majors in advanced schools primarily include the reform and upgrade of newly established majors and old majors. To establish new majors is an important measure in expediting the planned cultivation of specialized talents. To perform this task well we must, first of all, have a forecast on scientific talents. In 1983 advanced schools in our province started investigation on matching of majors and personnel departments and follow-up investigation on graduates, and proposed to establish 150-odd new majors. In order to further provide scientific basis on this, in 1984 a forecast on demands of talents was conducted again for 56 agency systems province-wide and, basically, the direction of newly established majors in our province from now on was clarified. Through investigative analysis, our province proposed a planning for development of majors during the "Seventh Five" period and planned to increase 100-odd new majors. Secondly, there must be overall planning and reasonable arrangement. Not only the newly developed majors must be considered in the context of overall economic and social development, but they must also be studied in the context of the entire educational development planning. The relationships between ordinary advanced schools, adult high schools and special secondary schools must be properly handled to arrange the establishment and development of majors of regular college courses, special fields and adult high school such that the wasteful phenomena in cultivation and utilization of talents can be avoided.

To reform old majors is an important aspect in the adjustment and reform of majors in advanced schools of our country that should not be overlooked. At present, I believe four areas of undertaking should especially be grasped.

1. Broaden the knowledge surface of majors, strengthen the adaptability of students. The service surfaces of current established majors

in our country are rather narrow. For instance, the industrial automation major is divided into several dozen kinds such as metallurgy, petroleum, architecture, coal mining, etc.; the mechanical engineering major is divided into several dozen kinds such as textile mechanical, light industry mechanical, chemistry mechanical, ocean mechanical, agriculture mechanical, etc. Therefore, the reform of old majors should start with broadening the knowledge surface. The key point of broadening must be placed on basic knowledge, including basic professional knowledge, which is not only the adaptability demand for social needs but, more importantly, is also the knowledge resources demand of modern scientific development. A number of institutes have made beneficial attempts on this aspect. Shandong Institute of the Ocean has broadened its sea water breeding major to aqueous breeding with the addition of fresh water breeding knowledge and its graduates are most welcomed by employing units. On the basis of broadening the surface of majors, certain new majors can also be derived. In the recent two years, the mechanical design and manufacturing majors of Department of Mechanical Engineering at Shandong University of Industry, the village finance major of Department of Agricultural Economy and afforestation major of Department of Horticulture at Shandong University of Agriculture and the economy law major of Department of Law at Shandong University are all newly established after basic course conditions are secured.

2. While reforming old majors, the level and specifications of talent cultivation by the subject majors must be further clarified. The operational specification relationships between various levels of graduate students, undergraduate students and special field students should be correctly handled, and the different requirements for talent cultivation of various levels should be clarified.

3. Reform existing structure of established majors, build a reasonable group of majors and promote the schools to develop toward the directions of multi-discipline and generalization. First of all, institutes of singular disciplines must develop toward multi-disciplined institutes. Shandong College of Textile Engineering, on the basis of the

engineering field under textile category, has progressively increased new disciplines such as textile management engineering, industrial foreign trade, industrial finance and accounting, fashion design, economy law, etc. in recent years. Secondly, multi-disciplined universities of industry and agriculture as well as arts and science develop toward generalized universities. The newly established Yentai University and Qingdao University of our province are both new, generalized universities that include disciplines such as science, engineering, management, arts, etc.

4. In order to assure smooth processing of the undertaking of adjustment and reform for majors, the corrupt practice of the existing leadership management system must be further overcome. At present, the advanced education of our country implements a three-level leadership management system of central ministry/committee, province/city and center city. This kind of system can bring the activeness of each administrative ministry/committee and local school operation into fuller play, which is beneficial to conducting forecasts of certain professional talents well and to implementing the combination of teaching, scientific research and production. But there also exist some problems, such as limiting the development and potential of certain majors, effecting the relaxing of <sup>the</sup> caliber of majors with narrower operational range and causing unnecessary duplicate establishment of certain majors. In order to overcome the existing problems in the leadership management system currently in operation, first of all, under the guidance of national planning, the joint school operation, consigned admission, contract signing, mutual assistance between various administrative ministries, provinces and cities must be greatly promoted to work hard to change the unreasonable situations of "small but comprehensive" and too narrow a caliber in the establishment of majors, and to bring the potentials of existing majors into full play. Second, earnestly study and realistically solve the authority limit of establishing majors, and perfect the reviewing system. After the reviewing authority of special field majors was delegated down to ministry/committee and province/city in 1984, our province has reviewed 40-odd special field majors which are

equivalent to one-eighth of the total number of majors of institutes under the province. The establishing of these special field majors has caused important moving effects for reorganizing internal relationships of advanced education, making school operation flexible and cultivating the "short, balanced, fast" talents urgently needed by the localities.

PRELIMINARY INVESTIGATION OF THE DEVELOPMENT ROUTE FOR ADVANCED  
TEACHERS TRAINING SCHOOLS IN THE NEW ERA

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Since the Third Session of the Eleventh Central Committee Plenary of the party, the undertakings of advanced education, through setting to right things that have been thrown into disorder and hard work to restore order, have gradually embarked on a healthy development track. Especially, the Twelfth Party Congress showed great foresight of the Party Central Committee. The national education has been upgraded to being one of the three key points of the great strategic goal in the year 2,000. This has marked a new milestones in the development history of national educational undertaking of our country. The Chinese Communist Central Committee pointed out in the "About the Decision on Educational System Reform" on May 27, 1985 that: "To treat the development of teachers training educational undertakings..... as the strategic measure of developing educational undertakings". This will impart tremendous moving effects on the development of teachers training education. In the meantime, this is also a glorious but arduous task that is proposed by the party's Central Committee and fellow countrymen to teachers training institutes to accelerate the cultivation and upbringing of large quantity of talents who are capable of facing the Four-Modernization, facing the future and facing the world. For this

reason, this paper plans to discuss a few superficial viewpoints on the issue of developmental route of advanced teachers training schools. They are limited viewpoints which are provided for mutual exchange of views.

I.

Teachers training education is an important component part of advanced education. To develop teachers training education is not only the urgent requirement of the construction of Four-Modernization but is also preparing for social and economic development of our country toward the end of this century and early next century. The extent of development in national educational undertaking of a country is an important mark for measuring her economy, science and technology, strength of national power and whether it is developed. The reason the economy, science and technology of countries situated in the advanced position can move forward with progresses obtained in each area and receive worldwide attention is closely related to their highly developed national educational undertakings and heavy emphasis on developing intelligence resources on a larger scale. For instance, Japan, which leads in electronic industry of the world, had lost 43% of her national wealth and 34% of her industrial facilities; but why was Japan able to rapidly become a strong country with developed economy in today's world in a few short decades after the war? Economists, management experts and educators, etc. of many countries in the world are all paying close attention and have conducted extensive investigation and research on this. Some western scholars believe that: "one of the reasons the Japanese economy, science and technology and especially applied technologies develop rapidly is that for years after the war the Japanese national education has received very extensive attention which in turn has promoted an unprecedented development in national educational undertakings and cultivated and laid up a large number of talents for the country's economic restoration and scientific and technological development." According to statistics of relevant information: In 1945 when Japan was defeated there were only 48 old-system universities, and by 1980 there were 446 with a growth of

9.3 times; the number of students had developed from 80-odd thousand before the war to 1,830,000 in 1980 with a growth close to 22 times ("Selected Data of Foreign Advanced Education", published by cadre continued education cadre of Huazong Teachers College, August 1983). For the short-term university (special field) of Japan, there were a total of 149 short-term universities approved and accredited by the Ministry of Education in 1950, among which 17 were public and 132 were private. By 1955, its number had developed to 272 in 9 years, among which 24 were national, 38 were public and 210 were private. There were 339 in 1964, among which 29 were national, 40 were public and 270 were private, and at the end of 1980 its number had reached 518 with growth of 3.5 times and was almost equivalent to the sum of universities and colleges of our country. But the Japanese population is only equivalent to one-tenth of that of our country, and not quite half of that of the U.S.; yet Japan has more talents than other countries and the intelligence level is also much higher than those of other countries. According to statistical information of 1973, there averaged 185.3 college students among 10,000 people in Japan, whereas there were only 12.1 college students among 10,000 people in our country by 1983 statistics. Even including students of adult advanced schools such as television university, farmers university, workers university, correspondence university and night university the number was still only 23.4. It can thus be seen that whichever country pays attention to education, to talent investment, the economic and scientific and technological development of that country will be fast, and the people are well-off and prosperous.

The national educational undertakings in our country are still very backward. For a long period, due to prejudice and discrimination against education, education has not been placed at the position it should occupy, causing educational undertakings to develop extremely slowly, especially during the 10-year disaster of the cultural revolution. Lin Biao and the "Gang of Four" took advantage of shortcomings and mistakes existing in practical operation of the party and, out of the needs to usurp the party and grab power, played up cultural

monopolism through which the vast educators were labelled as "reactionary bourgeois elements" and "spiritual nobilities who exploit the achievements of others". They were treated as "targets of revolution" and were brutally criticized and struggled against. The national educational undertakings of our country were not only subjected to unprecedented heavy destruction, causing the vast educators to suffer from grave devastation, but also causing the development of educational undertakings, economy, science and technology to lag behind an entire 20 years when compared with advanced countries in the world. If the Chinese people are to stand tall in the world and make joint contributions to the world, then the present situation of backward national education must be changed. In order to change the backward situation of our country, there must be a new understanding in the position and effects of education in the development of society. To start off from national education and to develop educational undertakings are beneficial to promoting economic restoration, progresses in science and technology and social development of our country.

It is impossible to cultivate and train an army of tens of thousands talents with modern scientific and cultural knowledge to construct our own country without highly developed national educational undertakings. Comrade Wan Li mentioned in the national educational undertaking convention convened on May 17, 1985 that: "Without talents, the undertakings of revolution and construction can not be successful". Comrade Deng Xiaoping had said that: "The basis for cultivating scientific and technological talents lies on education." This incisive judgment has fully explained the importance of education. Education is the basis, thus the development of advanced teachers training education ----the machine tool for developing educational undertaking, appears even more important. If the body of machine tool is not healthy and suffers from ailments, then it will certainly cause inherent poor quality in various levels of education. Teachers training education is the basis for basic education and the development level of teachers training education will directly affect the developmental level of basic education in the training and cultivation of a generation. If the

level of basic education is low, then not only the total energy of future social labor forces and the upgrade of future social productivity level are affected, but the development and upgrade of educational undertakings as well as the advances of society will certainly also be hindered. Therefore, to accelerate the development of teachers training educational undertaking is presently one of the most basic, important tasks of our country.

## II.

Based on the actual situations of our country, the 9-year compulsory education will be implemented step by step in our country. The Central Committee has decided that by 1990 during the seventh five-year plan period the undertakings for popularizing secondary schools in cities, economically developed coastal regions and a few developed inland regions where about one-fourth of the national populace concentrate will be completed; by 1995 during the eighth five-year plan period the undertakings for regular education or vocational and technical education in towns and villages with medium degree of development where about half of the national populace concentrate will be popularized; by 2,000 during the ninth five-year plan period-various degrees of undertakings for popularizing basic education for economically backward regions where about one-fourth of the national populace concentrate will be conducted. This is an important decision of our party. It concerns the construction of the socialist modernization, the degree of civilization and the important issue of national status in the world. According to statistics of relevant information: "At present, there are only 33 countries and regions out of 202 countries and regions of the world where compulsory education is not implemented, and among which 14 are in Asia and China is one of the 14 countries." ("Advanced Education and Economic Cost Effectiveness"). This is incompatible with the national status of our country in the world. To realize this great goal of nine-year compulsory education is, for us, an extremely formidable task and there are many problems that need to be solved. The most basic or the most rudimentary problem which needs to be solved in running education is that there must be a sufficient number of qualified teachers. Lacking

this vast and healthy faculty team as the basis, the realization of 9-year compulsory education is just hollow words. Just as Comrade Wan Li stated in the national educational undertaking convention on May 17, 1985 that: "In order to develop basic education and implement 9-year compulsory education, a larger number of qualified teachers must be cultivated." The "On the Decision of Educational System Reform" issued by the Chinese Communist Central Committee on May 27, 1985 has pointed out that: "To build a qualified and stable faculty team with sufficient number is a matter of fundamental importance in the implementation of compulsory education and upgrade of basic educational level." Our country is a big country with over 1 billion people. As the economic undertaking and educational technology of our country rapidly develop and the standard of living continuously increases, more and more people demand the opportunity to receive education. Just the existing number of grade school students in our country is equal to the total number of Great Britain, France and Italy. Therefore, to develop teacher training education as soon as possible in order to upgrade the faculty cultivation capability of teacher training institutes possesses profound historical significance and actuality significance to the realization of 9-year compulsory education and proper management of education.

In view of the existing basis and conditions of our country, ours is a country with extremely weak economic and cultural educational bases. In the early stage after the liberation, the teacher training education had been greatly developed to a specific degree; it had cultivated and trained a large number of outstanding talents for the socialist construction of the motherland and the achievements obtained are beyond doubts. However, we should also admit that the developmental pace of teacher training education of our country had not been fast enough since 1957. Due to years of lack of sufficient emphasis on teacher training education, plus the devastating influences of leftist thoughts, the teacher training education had gone through numerous upheavals; especially after the disastrous destruction during the ten years of turmoil, it sustained fatal internal injuries and had many debts and even today it has still not recovered. There had been greater difference between teacher training education and the needs for talents

by modernization construction, resulting in serious incompatible situations between the development of teacher training education and national economy. According to relevant statistical information: there were 186 advanced teacher training colleges nationwide in 1981, taking up about 26% of the total number of advanced schools; number of enrolled students was 230,000, taking up 25.5% of the total enrolled students in advanced schools. By 1984, it had developed into 200 colleges, taking about 23% of the total number of advanced schools and among which 67 had good foundation and 119 were advanced colleges for professional teacher training with the majority being upgraded from secondary teacher training colleges. Compared with foreign countries, the U.S. had her first teacher training college for cultivating secondary school teachers beginning in 1893 and the teacher training colleges experienced a period of rapid development. By 1941, there were 185 colleges nationwide and by 1948, there were 250 with teacher training colleges established in every state, the states of New York and Massachusetts had 11 and 13 respectively. By 1941, the teachers trained by state-funded, city-funded and private teacher training colleges took up more than 80% of the total number thereby popularizing secondary education throughout the U.S. after the Second World War ("College Education", No. 2, 1983). At present, the annual faculty cultivation capability of advanced teacher training colleges in our country is 80 thousand, whereas just regular secondary schools alone require an average increase of 200,000 teachers. This is enough to show that the teacher training colleges of our country, especially schools for professional teacher training, are not only extremely small in quantity but their scales are also small, and their actual faculty cultivation capabilities are not high, making it very difficult to adapt to the needs of modern society and the needs for teachers by secondary schools. The author believes that, based on the basic situations of our country, further expanding the scales of existing teacher training colleges and building and developing schools for training professional teachers are one of the important ways of speeding up the cultivation of secondary schools faculty and solving the problem of insufficient faculty.

In view of the situations of faculty at secondary schools nationwide, based on the statistical information at the end of 1983: among the total number of 2,844,000 secondary school teachers nationwide(it is now 3,000,000), 277,000 graduated from advanced colleges with undergraduate degrees which take up 9.8% of the total number; 390,000 studied at schools for professional training which take up 13.7%; 95,000 studied at advanced schools for less than 2 years which take up 3.5%, 2,081,000 were below college and high school level which take up 73.2%. The figures are even higher if the number of siblings replacing parents as teachers in recent years are added in (it is estimated that there are about 100,000 cases of siblings replacing parents as teachers) ("College Education", page 25, No. 8, 1983).

In view of the investigative statistical information on the situation of secondary school teacher teams of a certain region in Anhuei Province that: high school teachers of college undergraduate level take up 48.5% and middle school teachers (among which one-third are teachers graduated from schools run by local people) take up 82.6%. In view of the investigated situations of physical education classes 82 and 83 for teachers graduated from schools run by local people at a certain professional training school in Henan Province, there were a total of 120 students with the oldest one being about 35 years old and the youngest being about 23 years old. The longest time involved in teaching is about 15 years and the shortest is 5 years. Among them, some became physical education teachers in localities after being demobilized from the military; some were also involved in other fields at school such as teaching Chinese literature or mathematics and for one reason or another changed to teaching physical education; still others who, within local range, had specialized in a certain physical education field and were transferred to school as physical education teachers. Among the 120 teachers graduated from schools run by local people, basically none had any specialized and systematic professional training, such as studying at professional teacher training schools or having been trained and studied at educational colleges, etc. Their knowledge in basic physical education theories are quite poor and they

had not systematically studied the general pedagogy, physiology, psychology, physical education theory, etc., and what makes it more serious is that part of those teachers, after years of teaching, have still never seen a textbook such as "Teaching Material for Middle School Physical Education" for schools of full-day and 10-year systems. The majority of these teachers were recommended by locality and county seat, and they were the top scorers selected through strict examination. We have also found out during the investigation that teachers are in extremely short supply in many villages, especially in mountainous regions or economically backward regions; even in county-level middle schools located near cities with better economic conditions, a shortage of physical education teachers is also very serious. In many localities and counties the phenomena of middle school graduates teaching middle school and high school graduates teaching high school are very common. To summarize the above-described, presently the middle schools in our country are not only short of teachers but are also quite low in quality of teachers. The realization of implementing 9-year compulsory education is extremely difficult as long as this problem is not solved, and to build our country into a highly democratic, highly civilized socialist power will only be an illusion.

### III.

How to solve these practical problems? How to make the 9-year compulsory education of our country become a reality? On the one hand, multiple forms must be adopted to run schools and open all avenues that lead to schools, and the key advanced teacher training colleges should also, while concentrating on upgrading schools, share part of the task of cultivating and upgrading employed teachers of middle schools; on the other hand, the existing teacher training colleges, especially the old ones, should bring their own potential into full play by expanding the scale of admission and upgrading the economic cost effectiveness of faculty cultivation and training, making the pace of cultivating middle school faculty further quickened for substitution and replacement. The basic conditions of old schools are superior with more solid grounding, and they can, just through a short period of replenishing and reorganizing with little increase in investment from the state, immediately

start the "mass production of talents" and show early results. From the angle of educational economics, this is not only energy-saving but also time-saving with high cost effectiveness in investment. This is beneficial to produce talents fast, produce talents early and produce good talents. Some comrades believe that "now the state should build more professional teacher training schools again in a short period of time, and only by doing this can the existing practical problems be solved as quickly as possible". Of course, new schools should be built, and it is also necessary in the long run. But, priorities should be set in current stages and we should not ignore the present national conditions we face. The economy of our country is still very backward and the wounds sustained during the cultural revolution have not completely healed. To build a large number of full-day schools during the recuperating period is out of the question because the development of advanced education will have to be checked by the state's economic conditions. Using this method to expand admission quotas will make the state face not only funding difficulties but the infrastructures will also be hard-pressed. Therefore, the tapping of old schools' potential must be considered first to utilize existing conditions and to bring their own superiority into full play, then can it better adapt to the needs of socialist modernization construction of our country and can it be in line with our specific national conditions.

Whether old schools, especially those key national teacher training schools, have potential to be tapped, whether they have the capability to cultivate more teachers must rely upon scientific studies and analyses on existing basic conditions (manpower, material, financial power) thereby making us have a good idea where things stand in order to lay down corresponding measures. In view of manpower, comparing the teacher-to-student ratios at teacher training colleges of our country with those of the foreign countries, our ratios are too low and the average load rate in foreign countries is several times higher than that of our country. According to information provided by the United Nations, the current average teacher-to-student ratio in the world is 1 to 14 with 1 to 16.4 for the U.S., 1 to 15.3 for the Soviet Union, 1 to

17.74 for Japan, 1 to 27 for France in 1976 and 1 to 11.8 for West Germany in 1974; whereas it was 1 to 4.6 for our country by 1980 statistics and it averaged 1 to 5 by year-end statistics of 1981. In fact, in some of the regions where advanced schools are concentrated, their ratios are even lower. For instance, the ratio is 1 to 3.3 in Beijing and it is 1 to 3.9 in Shanghai. The teacher-to-student ratios are not only lower than those of schools in foreign countries, but they have also not recovered to the standard level ("A Few Words on the Construction and Management of Teachers Teams in Advanced Schools", for professional training school it is 1 to 7) specified by the state before the "Cultural Revolution". It can thus be seen that the load rate of advanced school teachers in our country is lower and the distance is greater when compared with foreign countries. If we can set and arrange teaching duty according to the 1 to 6 standard of teacher-to-student ratio specified by the state, then the annual admission scale of teacher training colleges will be astonishing and this can be fully confirmed which indicates that our faculty potential is still very great and the utilization rate of manpower can still be greatly upgraded. Let us take a further look, according to the investigative information statistics by a certain university in 1980, 40% of total number of teachers took on duties of teaching, tutoring and directing experiments, etc. in one semester and 25% of the total number of teachers were involved in scientific research duties with the two added together only equal to two-thirds of the total number of teachers. Even for teachers with teaching duty the weekly average teaching hours are 4 to 6, whereas in Japan college professors teach an average 8 to 10 hours every week. The weekly work load of full-time professors at advanced professional training schools in West Germany is 10 to 15 hours and it is 6 hours for part-time professors ("The Product of Economic Development in Post-War West Germany---Advanced Professional Training Schools"). It can thus be seen that less teaching load for teachers is also one of the reasons for low efficiency in our manpower utilization. Another relevant information also verified this point eloquently. According to the 1979 investigative statistics of a certain university that the accounting department received payment of 29,100 Yuans

for doing additional teaching, yet there were 488 teachers who were invited to do outside additional teaching. This totals 25,000 teaching hours and is equivalent to the required teaching hours for 1,200 students. There are presently 200 advanced teacher training colleges in our country and if, based on the aforementioned data to calculate, 10 teacher training colleges tapped the potential of teacher teaching load, then the admission of 12,000 students could be increased annually. These facts tell us that there is indeed great potential among our teacher ranks to be tapped. The current teacher utilization rate is rather low and one of its reasons, when compared with foreign countries, is the insufficient educational management capability of school where the level is lower and the management method is obsolete; secondly, the ideological work on teachers is not meticulous, not profound and their initiatives have not been fully mobilized. To conduct ideological work on teachers well, various levels of leadership must not only care about them politically but must also show consideration for them about their daily lives; the work must be carried out to actual places in need and this is an extremely important point. Special attention must be paid to realistic problems of middle-aged teachers; now that they are the backbone of teaching at school and meanwhile they also have the most difficulties in daily lives. For example, their wages are on the low side, shortage in living quarters, etc. Under current conditions, their difficulties should be solved as much as possible in order to make them have ease of mind and feel happy, thereby concentrating the majority of their energy on teaching work and being able to contribute more in cultivating talents for the state.

To expand the scale of admission not only requires earnest solutions to the issue of manpower utilization but must also consider from different angles the practical problem of school buildings. To solve this problem we must rely on the state; but just relying on national investment to quickly build in order to meet demands is, in the current stage of our country and in a longer period, impractical and is also impossible. Teacher training colleges should be just like various advanced schools nationwide to, under the present conditions, fully tap

the potential of school buildings and solve the practical problem by increasing the school building utilization rate.

Then, how are existing school buildings being utilized? Comparing with some of the advanced schools in foreign countries might give us some inspirations and some references. In view of situations of classroom utilization, presently many colleges are basically arranging classes according to the old traditional method where more classes are arranged in the morning with a lot less classes in the afternoon, sometimes the classroom is idle for the entire afternoon, let alone class arranged for the evening. Some of the foreigners who came to China are very surprised when they see this kind of situation because these phenomena are rare in foreign countries. Some of the universities in foreign countries, even though well-funded with abundant school buildings, are still fully utilizing classrooms without letting them be idle. From morning to evening, even including noon hours from 12 o'clock to 1 o'clock, they are all booked with teaching activities going on until 9 o'clock to 10 o'clock. It is thus clear that their classroom utilization rate is very high. If we can reasonably and scientifically absorb their valuable things for our use and based on scientific principles such as modern system theory, control theory, etc. we can adjust and control our procedures for arranging classes, and at the same time upgrade our management level. Making students go to classes according to a specific rotation system can greatly upgrade the utilization rate of classrooms and this is undoubtedly a beneficial condition for large scale admitting. In school management, we can never be as we used to be, not only poor but also wasteful without considering practical efficiency and cost effectiveness. In some of the scientifically advanced countries in the world, heavy emphasis is being placed on effectiveness when running a school. If a school does not consider this issue, then it will face the fate of closing its own doors and losing its capability to compete and survive. Ours is the advanced school of a socialist country and is the important base for cultivating talents. Paying attention to and being particular about cost effectiveness of running school should become a basic guideline for running schools and be

carried out through various aspects. Once this issue is solved well, then there will be <sup>A</sup>guarantee about increasing the number of admissions.

The utilization rate of classrooms must be increased and laboratory utilization should also be strengthened the same way. According to relevant statistical information, the utilization rate of our laboratories is also very low. For instance, the utilization rate of laboratories at various advanced colleges in Wuhan region is generally between 30% to 40% with the highest being 60% and the lowest being between 10% to 20%. Whether this situation only exists in Wuhan region or not is a question, but it is likely that this problem exists in the majority of advanced schools nationwide. Such a low laboratory utilization rate reflects the fact that we still have greater potential to be tapped. Generally speaking, the present utilization situation is not satisfactory regardless of whether it is manpower or material. Being unused and wasteful are indeed the general and common abuses in some advanced colleges. The author believes that changing the unreasonable utilization situation of classrooms and laboratories is one of the important means in bringing the potential of old schools into full play. As long as we truly recognize this point and establish economic viewpoints in practical work, set up strict economic audit system, conduct effective and scientific management thereby making it upgrade educational investment effects and lower educational costs, then the teacher training colleges can share more teaching duties, satisfy the needs of more students and thus cultivate tens of thousands qualified educational talents as soon as possible.

In order to expand admission scales of schools under existing material conditions, implementing the commute-to-school system for college students is also one of the important aspects for alleviating the school building shortage problem. The commute-to-school system for college students is not something novel, but has long been in existence in foreign countries and it is still quite popular even today. According to relevant statistical information, the famous Tokyo University of Japan has a total of 14,000 students among which 95% are students

who commute to school and only 5% live in dormitories. Among the full-day system college students in the Soviet Union, over half are commuting to school; it was 55% between 1970 and 1975, and it was still 53% in 1980 (even students who live in dormitories have to take care of their own meals), whereas it is exactly the opposite comparing our national conditions with theirs. Since the establishment of the People's Republic the state has always been paying for everything to cultivate college students by implementing the "Cover All" system: cover food, cover living quarters, cover utilities, furniture, job placement after graduation, health care, etc. It is truly all-inclusive and complete with every aspect. If this has caused active effects in assuring that children of farmers and workers have the opportunities to go to college, especially in the fifties when the country was in a difficult period and the standard of living was generally low, then today when the society has moved into the eighties and the standard of living of the vast masses has been upgraded to a certain degree, it is lagging far behind the development of time if the all-inclusive method for cultivating modern college students is continued. Some comrades say that: "Ours is a socialist country and this is exactly where we differ from capitalist countries in that it reflects the superiority of socialism." I believe, however, it is not so much superiority of socialism as abuse. The college students cultivating method where the state pays for everything is not only disadvantageous to the development of national educational undertakings but is also disadvantageous to the expansion of school construction scale; it is even more disadvantageous to cultivating the capabilities of today's college students, and contrarily, it will limit, to a certain degree, the opportunities of more school age youngsters to receive advanced education. If it keeps on going this way and moving in circles, then it will definitely cause a vicious cycle. The national educational undertakings are unable to develop; school operation lacks vitality and life; the students' zeal for learning is oppressed which not only affects the cultivation of talents and construction of socialist modernization, but more critically, it will directly affect the upgrade of scientific, cultural knowledge level of the entire nation. The fact that 230,000,000 illiterates and semi-illiterates exist today is

sufficient to prove this point. Now if we can not stand at a specific height to recognize this problem and we lack a sense of urgency, then we are going to commit an irreversible historical mistake. New illiterates will continue to increase, the high-degree socialist democracy and high-degree civilization will be difficult to realize, and it will be impossible to build a strong, modern country of socialism.

If the state clearly stipulates that part of or the majority of college students are to practice commute-to-school education, then students take care of their own living expenses; certain subsidies and tuition waivers are given to students who really have financial difficulties; and scholarships are awarded to students with outstanding academic records. Thus, first of all, the state can save financial expenditures and the income of school can also be increased; secondly, the students will be urged to treasure, to a certain extent, their opportunities to learn and their spirits of forging ahead every day will be aroused; thirdly, it is beneficial to <sup>a</sup>high-degree utilization of school's man-power, financial power and materiel and thereby being conducive to upgrading cost effectiveness of school operation; fourthly, it is beneficial to organizing the common educational network system of family, school and society and forming the strong "magnetic field" with mutual attraction. It is conducive to the cultivation and education of students in such a multi-structured, multi-layered "magnetic field". Meanwhile, the state can not only spend less and produce more talents, but it is also beneficial to promoting stability and solidarity in society.

By adopting the commute-to-school method, the state can thus use a large amount of economic investment on "expanded reproduction" to establish new schools, expand the scale of old schools thereby promoting the great development of national educational undertakings and giving impetus to the long-term progresses of the entire society, economy, science and technology. We can positively say that when the state invests part of the fundings it saves into popularizing education, there will be more people receiving modern education nationwide. Therefore, rapidly changing the existing unreasonable management system of teacher training college

fully taps the potential of old school, implements socialized management, properly arranges manpower, materiel and financial power, brings the best economic cost effectiveness into play, and truly achieves people doing their utmost, materiel being utilized to its fullest and funds being channelled to their best uses, then the faculty cultivation capabilities of our schools can be upgraded to their maximum limits and can lay a sturdy foundation for economic restoration and high-degree development of science and technology of our country in the early twenty-first century. In short, we must start off from our own national conditions and run schools accordingly to not only facing the reality but also looking toward the future; not only standing tall in the eighties but also putting the nineties into consideration. Only this way can our schools be run better and better, and be full of more vitality such that more and better talents are being transferred to the socialist revolution and construction, thereby giving a strong and powerful impetus to the development of our country's educational undertakings and lifting the cultural, scientific quality and spiritual realm of the entire nation to a brand new level.

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TENTATIVE IDEAS ON THE REFORM OF TEACHING MATERIALS OF "ECONOMIC ACTIVITY ANALYSIS"

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Economic activity analysis is based on information such as planning, accounting, etc. and applies<sup>A</sup> a specialized method to conduct study and evaluation on the process of economic activity and its results during a specific period. From the implementation angle, it is an important enterprising management undertaking. From theoretical angle, it is the science of methodology on management. For a long period, economic activity analysis has not gained sufficient attention and has always been a weak link in the enterprising management work. In teaching advanced finance and economy majors, since the existing teaching materials still follow the traditional models of the Soviet Union of the fifties with obsolete contents and numerous duplications to teaching materials of accounting and statistics, some comrades suggested that, when discussing the system reform of accounting discipline, it be abolished and that its contents be respectively incorporated into teaching materials of accounting analysis and statistical analysis. I believe that this viewpoint is worth further discussing. Since the economic activity of enterprise is an organic entity and full-scale evaluation of the entire process of enterprising economic activity and its economic cost effectiveness is a highly complicated and generalized

task, any isolated and decentralized analytical method will be difficult to succeed and will be certain to damage the systematicness of study and completeness of evaluation. As planned merchandise economy continues to develop, the strengthening of economic activity analysis has become an important means for upgrading enterprise quality. In theoretical system, the block type structure where the two portions, production analysis and financial analysis, are listed side by side should be gradually transitioned to the infiltrating type structure of accounting and statistics combining with other technical economics as well as management disciplines. Therefore, we should use on the needs of situation as a basis to actively conduct reform on teaching materials and constantly replace the analytical contents and improve the analytical method. The tentative ideas, except for summary, are supposed to be divided into five topics:

(1) Production management analysis: In order to adapt to enterprise transforming from pure production type to production management type, it is not enough to just analyze the implementing situations of production plan. It should analyze and evaluate, while analyzing the production result indexes, the conditions of various stages of supply, production and sales in the entire production management process thereby having an overall understanding of the production management situations of enterprises and discovering the successes and mistakes in management so as to provide basis for the next step of policymaking.

(2) Cost effectiveness analysis: This is the core portion of economic activity analysis. The one-sided style of purely analyzing the situations of lowering cost and completing tasks must be overcome. It should be based on the dialectical relationship between cost and effectiveness, and when conducting a full-scaled analysis on cost planning and implementation status, the modern management methods such as cost difference analysis and fringe benefit analysis must be enthusiastically introduced and some policymaking cost concepts be dexterously applied to conduct specific analysis, making the work of cost analysis not separated from the central goal of upgrading economic effectiveness.

(3) Technical economy analysis: Concentrated cost and effectiveness reflects the utilization conditions of various productivity factors, and they are directly or indirectly affected by the changes in technical economic factors. Therefore, we should search for ways to lower cost and increase effectiveness from the technical economic angle. A full-process analysis must be conducted from various links such as product design, technological measures, production organization, product promotion to customer utilization, and profound studies must be conducted on the disposition ratio of material resources and labor resources to further investigate the reasons, find measures and tap and upgrade the potential of enterprising economic effectiveness.

(4) Financial condition analysis: On the basis of analyzing the reasonableness of funding source and utilization, evaluating the condition of enterprise's payment capability is the major index for judging the shape of its financial conditions. The mutual influences of financial condition and production management condition must be painstakingly analyzed; the risk-factor analytical method should be applied to make the enterprise maintain excellent financial conditions and production management status at all times, and use capital time value analytical method to evaluate the utilization effects of various investments, thereby forming a general index system for full-scaled evaluation of enterprising economic effectiveness.

(5) Comprehensive case analysis: The economic activity analysis has two characteristics ---comprehensiveness and practicalness, and to properly increase case studies is very necessary. Through investigation and research, comprehensive cases are formed; the aforementioned topic analyses are incorporated to form one entity and attention is paid to the integration of longitudinal analysis and lateral analysis, the integration of afterward analysis and beforehand and in-progress analyses, and the integration of general case analysis and special case analysis. Emphasis is on expounding analytical principles and basic methods from typical cases in order to cultivate the student's capability to comprehensively utilize knowledge and solve practical problems.

SOME COMMENTS AND OPINIONS ON THE EXISTING PROBLEMS IN COMMON EDUCATION COURSE ESTABLISHMENT AT ADVANCED TEACHER TRAINING COLLEGES

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Course. Teaching Materials. Teaching Method.(Beijing), 1986. 1. 22-25

The professional education training for students of teacher training colleges is an extremely important task of advanced teacher training colleges. In this area, there are numerous problems in the existing common education course establishment at advanced teacher training colleges of our country, and it will be difficult to bring the effects it is supposed to have into play and impossible to cultivate qualified people's teachers if it is not reformed.

Then, what are the existing problems in common education course establishment at advanced teacher training colleges?

I. Management Systems of the Existing Teacher Training Education Ignore the Professional Education Training of Students at Teacher Training Colleges.

Although people do not deny the effects of professional education training for students of teacher training colleges, yet in fact the management systems of existing teacher training education ignore the professional education training for students of teacher training

colleges.

It can be seen from the teaching plan(see Table 1) issued by superior ministries in charge that the existing common education courses of advanced teacher training colleges in our country not only have less classes scheduled and less hours(this will be discussed in detail below), but they are all investigative courses. Objectively, this gives people the impression that: education courses are not important, and they are in fact also true. Presently, the two levels of departmental leadership at teacher training schools do not, to a very large extent, pay much attention to these courses. Some schools even, when arranging class schedules, treat them as "filler" classes(i.e. after arranging other classes, then the common education classes are filled into the remaining blanks in the class schedules), and this indicates that the education courses are in an extremely unimportant, subordinate position in the entire class schedule.

Table 1. Class Schedules and hours table of common education courses at four-year advanced teacher training colleges

(1)项 目	(5)系 别	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(18)
(2)教育专业课程												
教学时数		124	139	138	144	168	158	142	144	126	119	104 68
占教学总时数的%		4.93	5.72	6.04	5.3	6.4	5.98	5.2	5.5	4.52	5.7	2.9 2.3

Key: (1) Item; (2) Professional education courses; (3) Teaching hours; (4) % in total teaching hours; (5) Department; (6) Political education; (7) Chinese literature; (8) History; (9) Foreign language; (10) Mathematics; (11) Physics; (12) Chemistry; (13) Biology; (14) Geography; (15) Arts; (16) Music; (17) Painting; (18) Physical education; (19) Psychology, pedagogy, teaching materials and teaching methods of various courses.

Note: Established according to the original credit-hour system teaching plan promulgated by the ministry in 1980 ①.

① Refer to "Studies on Teacher Training Education", published by the School of Education Courses of Fujian Teacher Training University, page 40, Volume 1, 1983.

Let us look again from the internal leadership system angle: presently there are generally the first-level leadership of Vice President and Dean's Office that are in charge of teaching tasks , and the Party Committee and Office of Political Affairs that are responsible for political thought work; yet only the professional education training does not have designated people and designated organizations that are responsible for it. The majority of undergraduate teacher training colleges place it under the name of "Teaching and Research Section of Education Courses" under Department of Education at said college, or nominally under the control of Dean's Office, or subdivide it to be under the control of each department; but due to the lack of organizational assurance, it is actually not workable. In professional teacher training schools, the independently established "Teaching and Research Section of Education Courses" is responsible for theoretical teaching of education courses. They are subject to various limitations such as personnel authority, finance authority, teaching plan authority, etc. thus seriously affecting the development of teaching of education courses and scientific and research undertakings as well as seriously hampering the upgrade of teaching quality.

It can be said that the establishment of common education courses is unscientific and the key lies at the leadership not paying enough attention and the management system of professional education training being unsound.

## II. There Are Too Few Education Courses Offered and Too Few Class Hours

In investigating the development of teacher training education in foreign countries, the requirements for students of teacher training schools in various countries are not beyond the scope of three areas: (1) political thought education; (2) general cultural education and major course education; (3) professional education training. In the existing teaching plan at advanced teacher training colleges of our country the hours for professional education training, while being one of the three requirements, only take up about 5%(only 6.4% at the most)

of the total teaching hours and only three courses are offered. This is extremely unreasonable and implementation has proved that it is also extremely unscientific.

The economically and educationally more advanced countries in the world are all paying much attention to the professional education training of future teachers. Take the U.S. for example, the education courses at various advanced teacher training colleges have progressively developed into several interrelated and independent classes. Most of the advanced teacher training colleges do not have classes such as: "Secondary Educational Principles", "Secondary Educational Methods", "Pedagogic Philosophy", "History of Education", "Pedagogic Psychology", "Growth and Development", "Psychology", "Adolescent Psychology", "Pedagogic Evaluation", etc. The professional education training takes up 40% of the total classes at teacher training colleges, takes up 39.3% at the Department of Education of the College of Liberal Arts and Science, and takes up 41.4% at the College of Education of a generalized university. In conclusion, professional education courses not only have many categories but also take up over one-third the weight of total classes. In Japan, courses such as "History of Education", "Pedagogic Methods", "Pedagogic Psychology" and "Child Psychology", etc., and the class hours take up about 15% of the total hours ②. Therefore, regardless of class category or teaching hours, there are considerable differences when comparing those of our country with those of advanced countries.

At present, many countries are paying more and more attention to the professional education training of students at teacher training schools. Take the Soviet Union for instance, the new teaching plan for advanced teacher training colleges implemented during 1983-1984 in the Soviet Union had, as one of its characteristics, significantly upgraded the requirement for pedagogy and psychology courses. It is common

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② Refer to "Comparative Education", edited by Wang Chenxu, Zhu Bo and Gu Ming, People's Education Publishing Company, page 210, 1982.

practice that every major has increased teaching hours for pedagogy and psychology courses. In various teaching plans associated with it, the time spent on pedagogy and psychology courses take up 20-40% of total class hours(it was generally 25% in the past with a total of 460 credit hours ③), and its magnitude of increase or decrease varies with different majors. For example, one of the group is the basic teaching plan of the Soviet Union's teacher training colleges for cultivating faculties who are capable of teaching 1-2 courses and the time spent on professional education training takes up 23-30% of the total credit hours ④.

It is the common feeling among various countries that in this time of modern technology development teachers not only must grasp abundant scientific knowledge but must also be good at effectively imparting scientific knowledge to students within a short period of time, good at developing intelligence of students and upgrading abilities of students, and this will require that teachers understand education principles, grasp educational and teaching techniques and skills. Experiences here and abroad have shown that ignoring professional education training will make future teachers unable to adapt to future educational tasks. Lenin Teacher Training College in Moscow had investigated the working situations of its graduates at regular middle schools and the results had shown, after analysis, that: those who can best adapt to regular middle school work are mostly graduates of the Department of Education; graduates of various departments of liberal arts are less able to adapt and graduates of various departments of natural science can least adapt. The reason the latter two can not adapt to educational tasks is because teaching hours for pedagogy and psychology were not sufficient, contents of teaching materials for major courses were too complex and the directionality of teacher training education did not stand out, in addition to the existing problems(including the lack of connection between various education courses) ⑤.

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③ Same as 2 , refer to page 210.

④ Zhu Peirong:"Information on Education of Foreign Countries", Huadong Teacher Training University, page 9, No. 4, 1984.

⑤ Same as 4 , page 6.

Not enough professional education classes and not enough class hours is an important reason why our teacher training college graduates can not understand and utilize educational sciences.

### III. Teach Only Education Theories, Lacking Sufficient Training in Educational Techniques and Skills

Presently, the common education courses all lay particular emphasis on teaching theories to students, whereas the training of basic techniques and skills of education and teaching required by educational tasks are, to a very large extent, being ignored. We know that superior teachers must have excellent educational techniques, skills and yet to acquire techniques and skills requires special training. The results of implementation have shown that: those students who often participate in live performances and speeches generally have strong abilities to express themselves, good teaching attitude and better teaching effects. Training of educational techniques and skills has been conducted on students of teacher training schools in foreign countries and excellent results have been obtained. The Bortawa Teacher Training College (the Alma Mater of famous Russian Educators Makalenko and Suhomlynsky) in Ukraine of the Soviet Union experimented offering "Training Courses on Educational Skills and Basic Principles" in 1979. The course was divided into two parts of theoretical class and practical class to primarily introduce educational skills and their significance to improving education work, Lenin's educational skills, and educational art of outstanding educators to students; train student's ability to express oneself and ability of educational communication; master the art factors between actor and director in educational activities such as expression means of actor's performing art, facial expressions, action, etc. They conducted a three-year experiment and 2,700-odd students had selected this course during those three years. In February 1982 the Soviet Ministry of Education affirmed their experiences and printed their teaching outlines to distribute among teacher training colleges throughout the Soviet Union, and eventually included them in the teaching plan to be implemented beginning in school year 1983-1984 <sup>(6)</sup>. In

comparison, in the existing teaching plans of teacher training colleges of our country, except for a few extracurricular activities combined with theoretical teaching of pedagogy, education practical training is only required just before graduation. Implementation has proved that: it will be difficult to accomplish the task of educational techniques training by just relying upon this practical training time of a few weeks. Moreover, presently each school generally lacks theoretical and methodological guidance in practical education training, and there are no designated organizations within the structure to assure, whereas more often than not a "Practical Education Training Guidance Group" is hastily put together at the very last minute. Therefore, it is unlikely to obtain satisfactory results.

It is believed that if, as far as the establishment of <sup>a</sup>course is concerned, more attention is paid to the specialized training of educational techniques and skills for students at teacher training schools, than their abilities to conduct educational work will be greatly increased.

#### IV. Relationships Between Various Education Courses Are Not Clear and Many Redundancies Are Found in Their Contents

In the existing educational class schedules, the relationships between various courses are not clear enough and the borderlines of divisions are vague causing overlapping. For example, a very large portion of the contents of chapters in psychology related to "Sense Impression" or the "Application of Rules of Sense Impression in Teaching" have been covered in "Principles of Objectivity" and "Demonstrative Method" of pedagogy; "Memorization" also talks about "Principles of Solidification" of pedagogy; the contents of psychology related to "Cultivation of Capability" are similar to those of "Relationship Between Knowledge and Capability" and "Teach Students in Accordance with Their Aptitudes".

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<sup>6</sup> See "Information on Education in Foreign Countries", Huadong Teacher Training University, page 8, No. 4, 1984.

Again, for instance, there are also similar duplicative phenomena in pedagogy and various teaching methods. Take language teaching methods of middle school as an example; the main content of "Basic Links of Teaching Work" in pedagogy includes preparing for classes, teaching classes, assigning and grading homework, after-school tutoring, checking and evaluating academic performance, and there are considerable duplications between them and those of observation, examination and preparation for class in language teaching method. For instance, in the chapter on "preparing for classes", what they talk about is basically the same ⑦⑧ (see the following table).

	(3) 教育学	(4) 中学语文教学法
(1) 课 题		(9)
(5)	钻研教材	钻研教材, 明确目的要求。
(2)	(6) 了解学生	(10) 了解学生, 掌握班级情况。
(7)	考虑教法	(11) 研究教学步骤与方法
		(12) 编写教案, 设计板书。

Key: (1) Topic; (2) Preparation for class; (3) Course; (4) Pedagogy; (5) Study teaching materials; (6) Understand students; (7) Consider teaching method; (8) Middle school language teaching method; (9) Study teaching method, clarify goals and requirements; (10) understand students, control situations of class; (11) Study teaching procedures and methods; (12) Write teaching plan, design blackboard notes.

7 Refer to "Pedagogy", jointly edited by Department of Education, Huazhong Teacher Training College, et al. five colleges, People's Education Publishing Company, page 173, 1982 edition.

8 Refer to "Middle School Language Teaching Method", jointly edited by Department of Chinese Literature, Wuhan Teacher Training College, et al. twelve colleges, People's Publishing Company, page 121, 1980 edition.

Thus, there are scientific defects in the existing pedagogy such as shallow theoretical probing, lack of substantive analysis and proofs, and being unable to provide teaching materials and methods with practical theoretical guidance. However, the examples given by teachers of these two courses during classes more often than not are related to student's majors; the situation of the aforementioned duplication in content of teaching thus occurs. No wonder some teachers of teaching methods for teaching materials complain that teachers of pedagogy have robbed them of their "rice bowls".

The above-described series of existing problems have seriously hampered the bringing of effects of education courses into play and have seriously affected the upgrade of teaching quality at teacher training schools. Then, how should the common education courses of advanced teacher training colleges be established? I believe that:

First of all, the superior education ministries and leadership of the school must fully recognize the effects of education courses and must enhance features of teacher training. Using this as the basis, the existing school systems and teaching plans are reformed accordingly. The credit hour arrangement ratio of education courses should be greatly expanded. If the time for training teaching and educational techniques and skills and practical education training of educational theories are added together, it is more suitable to control the teaching hours of professional education training at about 40% of the total planned hours. This point will involve full-scaled reform of the setting of a teaching plan, overhauling school systems. This includes compressing credit hours of regular education and making up for education, or extending school semester and shortening the semester time of professional education training.

Secondly, the setting of a joint committee of the Ministry of Education and the Ministry of Higher Education to coordinate higher and graduate schools to unify the curriculum of teacher training and teacher training colleges.

Secondly, the leadership system of teacher training colleges should be reformed. We believe that the first-level leadership of each advanced teacher training college should have designated people in charge of professional education training for students; the second-level leadership organization should be independently established under the "Teaching and Research Branch of Common Education Courses" with "Teaching and Research Section of Education Theory", "Teaching and Research Section of Educational Techniques and Skills Training" and "Research Section of Practical Education Training Guidance" established under it to be respectively responsible for the research of common education theory classes, the training and research of educational techniques and skills, and guiding the work of research in practical education training.

Thirdly, increase new courses in education theories, reform the course structure and contents system of existing education courses. As analyzed above, we believe, referencing experiences of foreign countries, general psychology, child psychology, pedagogic psychology, social psychology, pedagogy, history of education, teaching methods for various courses, audio-video education, comparative education, etc. should all become commonly required courses or selective courses for students of teacher training schools.

As future people's teachers, they should be familiar with psychology; however, they are not future teachers of psychology and they do not have to master a lot of psychological concepts. But they must thoroughly study theories such as pedagogic psychology, child psychology, etc. that are closely related educational work. The focal point for teaching psychology should be placed in this area. Some people believe that offering pedagogic psychology might be duplicate to the contents of pedagogy, but we believe that contents duplication in the past was completely caused by unreasonable selection of teaching materials system and teaching material contents. Now that pedagogy and pedagogic psychology have all become independent disciplines, they should naturally have their own independent research objects, independent systems and different contents.

It is not an easy task to reform class scheduling of education courses; it requires organizing a group of top-rated, reform-dedicated educators and actual education workers with not only theories but also education implementation experiences to join forces in order to accomplish it.

Fourthly, in addition to imparting education theories and knowledge, education courses should also take on the guidance task of educational techniques and skills training and Practical education training. Educational techniques and skills can be practiced through other channels such as participating in live performances and giving speeches. But, after all, these practices are not well-organized and it is impossible to obtain a complete training in the various skills required as a teacher by solely relying upon extracurricular channels. Organization designated for training should be established and it is most suitable to let the common education courses be in charge of this organization. Because, on the one hand, the duty of education courses is to teach students the theory, method and means for understanding people and educating people, whereas educational techniques and skills are the direct means to understand people and educate people; on the other hand, one of the duties of education courses is to impart education theories. Educational techniques and skills, however, are the way to realize education theories or the implementation of education theories. Their directions are most definite, goals most clear and effectiveness the highest only when they are under the guidance of education theories.

Selecting the contents of educational techniques and skills training must not only consider the needs of imparting knowledge but must also consider the needs of political thought work; must not only consider the needs of having dealings with students, but must also consider the needs of having dealings with units and individuals that frequently influence students; we must not only recognize the effects of speech behavior but must also pay much attention to the effects of nonspeech behavior. American psychologist Abel Maylor believes that, after conducting numerous experiments, the total effects of information = 7%

written words + 38% intonation + 55% facial expressions. If intonation is categorized as nonspeech behavior, then the effects of nonspeech behavior are quite significant.. Nonspeech behavior can attract student's attention; supplement, stress, explain and even replace the effects of speech behavior; accompanying speech behavior with non-speech behavior can make students obtain a lively image when receiving a speech message ⑨ . Therefore, we believe that the training of educational techniques and skills should include the following contents, such as:(1) techniques and skills of verbal expressions(clear, lively, humorous, imagery, and rich in emotions, etc.); (2) techniques and skills of written expressions(composition, blackboard notes, etc.); (3) techniques and skills of explaining charts and tables; (4) techniques and skills of applying modernized teaching means; (5) techniques and skills of posture, hand gestures and facial expressions; (6) demonstration and role model, etc.

Practical education training is not only the examination of teaching results of major courses and teaching results of education courses, it is also an important way for education implementation training itself. Therefore, its position should be greatly enhanced and the designated organizations for guiding practical education training should be established so that there are designated people to systematically study and guide the long-term practical education training work.

The scientific establishment of education courses is the requirement for upgrading the quality of students of teacher training schools and is the fundamental assurance for teacher training colleges to realize the characteristics of training teachers. The author offers a few commonplace remarks by way of introduction so that others may come up with valuable opinions, and in the hope of arousing people's attention to this problem.

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9. Quoted from "Education Digest", edited by the Central Research Institute of Education Science, No. 6, 8th edition.

## A FEW THOUGHTS ON THE REFORM OF TEACHING OF MEDICAL SCIENCE

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Medical Education (Beijing), 1986. 2. 12-14, 16

The Central Committee of the Chinese Communist Party made a decision on the reform of <sup>the</sup> educational system on May 27, 1985 which had extremely important significance to the socialist modernization construction of our country. We believe the primary corrupt practices in the teaching of medical science of the existing educational system are: (1) too many courses in the class schedule, the total credit hours and weekly credit hours tend to be high, giving students too heavy a load; (2) the medical education model is basically biological medical model; (3) the educational contents are cumbersome with some of the contents being obsolete and redundant; (4) it is primarily the imparting of knowledge as far as educational thought is concerned, and not enough attention is paid to cultivating student's capabilities, and cultivation of creative talents is ignored; (5) the primary teaching method is the "instilling style" without emphasis on eliciting thoughts and guidance on self-study to cultivate student's capability of grasping knowledge and the atmosphere of free probing of basic theories, basic techniques and academics is not active enough; (6) the method of examination is not conducive to leading students to take the initiative to learn and enhance the cultivation of capability; (7)

connected with the above various items, the students learn passively which affects the overall development of morality, intelligence and physical strength and is not beneficial to cultivating high-quality talents. It depends on local conditions as to how to overcome the aforementioned corrupt practices. To implement the reform which is in line with our national conditions and medical education characteristics in order to make education "face the modernization, face the world, face the future" and reach the goal of "upgrading national quality, producing more talents and producing good talents". This is a problem for which medical education workers must immediately probe the solutions and for this reason, we also talk about a few simple thoughts.

I. Establish reasonable rules and regulations, practice scientific management, fully mobilize the subjective dynamic roles of teachers and students

The core of reform on teaching is to upgrade quality of teaching, and yet the key to upgrading quality of teaching lies in mobilizing the activeness of teachers and students. Reasonable rules and regulations and practicing scientific management is one of the important linkages in mobilizing the subjective dynamic roles of teachers and students. Numerous existing systems are quite imperfect and unreasonable. For example, the existing management system only has an executive system and lacks a feedback system and monitoring system, causing low efficiency and lack of good evaluation and promotion systems for teachers; for students the restrictions are too rigid, such as the student rules requiring that students must attend classes and they must be expelled if they miss 50 class hours, and that students must complete every course in the study plan, etc. Therefore, a lot of teachers are reluctant to actively engage in teaching and think teaching is an output; the students, then, learn passively and are forced to learn. In order to change this situation, we propose:

(1) The following measures can be adopted in mobilizing the activeness aspect of teachers:

1. Strictly follow the policy of the Central Committee, fully trust teachers and treat teachers as an important component part and dependent force of the worker class. Full decision-making authority such as the hiring and firing of department and section teaching personnel, authority to use of teaching funding, laying down of teaching plans, selection of teaching contents, reform authority of teaching methods and procurement authority of instruments and equipment should be delegated to department heads and chiefs of teaching and research sections.
2. Create as many excellent working conditions for teachers as possible, For senior instructors, especially those above the level of associate professor, in addition to providing specific scientific research condition, assistants should be assigned to them to combine teaching, scientific research and teacher training.
3. Correctly evaluate the work of teachers, reasonably stipulate promotion qualifications. For instance, when calculating the teaching work load of teachers, the time spent on various linkages of teaching (lecturing, lab work, grading examination papers, tutoring, writing teaching materials, organizing teaching, reforming teaching and meeting on teaching) should be properly taken into account. Renewing contents of teaching and quality of teaching should be taken into full consideration when calculating class preparation time. There should be specific performance evaluation system. The promotion of teacher's teaching title should be different from the promotion of scientific research title. The former puts more weight on quality of teaching, academic level, capability of writing teaching materials, teaching work load, educating people, conditions of reform of teaching, foreign language level, etc., and the clinical practice level of clinical teacher should also be treated as one of the important qualifications for promotion; whereas the latter puts more weight on scientific research capability and scientific research results.
4. Establish teaching reward systems such as outstanding teacher

award, reform of teaching award, outstanding writing of teaching material award and management of teaching award. Competition can be conducted 1-2 times every year and special considerations are given to teachers and staff members when it is time for teaching title promotion and wage adjustment.

5. Give as much preferential treatment to living conditions as possible to take away the worry of trouble at home, especially the problem of difficulties in finding jobs and going to college for children of middle-aged teachers.

6. For teachers with heavier teaching load, attention should be paid to arrange specific time for them to proceed with further study or conduct academic exchange and scientific research in order to regenerate knowledge.

(II) The following measures can be adopted to mobilize the student's learning activeness.

1. Bring the effects of student association and class committee into full play to let students manage themselves. When school discusses important issues, especially those that are directly related to student's immediate and vital interests, there must be representatives from the student association sitting in. The student association must help students to organize, on their own, beneficial extracurricular academic and cultural sporting activities. The leadership of school and locality must encourage and assist students to develop the co-operation program, and this is not only for students to make a fixed income but, more importantly, is also to cultivate student's independent spirit and practical working capability.

2. Teaching management personnel. Make young teachers the class director on the side, and the students of each class select learning committee members and class representatives by voting. The Teaching and Research Section and Dean's Office gain routine contacts with learning

ccmmitee members and class representatives through <sup>a</sup>A class director to establish the feedback system of teaching.

3. Progressively change the subsidy system to scholarship, loan and pay-your-own-expenses system and correctly guide students to participate in a co-operation program.

4. Implement the combined system of credit hour and school year with reasonable elimination, i.e. based on the cultivation goals and demands to determine the limit for years of learning for various kinds of medical school students (undergraduate, special programs). To adopt a credit hour system requires that students must complete all required credit hours within the required limit for years of learning in order to be eligible for a diploma; if one completes the required credit hours ahead of schedule, then he can graduate ahead of schedule, or sign up for graduate school entrance examination, or participate in scientific research work on a certain discipline; if one is unable to complete the required credit hours within the required year-limit, then he will either be expelled or not eligible to graduate.

5. Teach students in accordance with their aptitudes, and for those students who are capable of doing more, extracurricular interest groups can be properly organized for them to participate in. If an individual student has already mastered a certain required course and does not think he needs to take it again, then he can submit to the Dean's Office an application for a waiver and the course can be waived after related Teaching and Research Sections have conducted an evaluation which shows that he has reached the required level.

6. Enhance thought education and medical ethics education, and follow them through.

II. Carefully Select Contents of Teaching, Compress Total Class Hours, Reduce Required Courses and Increase Selective Courses.

There are too many courses offered in the existing five-year teaching plan, too many weekly class hours, and this is the major obstacle which causes the students to learn passively and that binds the development of student's intelligence, and it is also one of the major reasons which affects the capability to cultivate students.

To carefully select contents of teaching is not only for compressing class hours but is also for making contents of teaching more in line with the requirement of cultivation goal to eliminate those cumbersome and obsolete contents, increase the new and advanced contents which medical students must master and avoid unnecessary duplications. On the basis of carefully selecting contents of teaching, the teachers should be encouraged to write teaching materials or notes which will reflect the characteristics of each school.

As for the reform of courses offered, we believe it should be based on the following principles: (1) the urgent needs of Four-Modernization construction; (2) the development of medical science; (3) the challenges of the already-started technological revolution; (4) biological-psychological-social medical science model. Therefore, greater attention should be paid to courses such as ethics, patient psychology, computer applications, preventive medical science, etc.

### III. Enhance the Practice Linkage and Reform the Laboratory Courses

Medical science is a science with very strong practicalness, and laboratory teaching is an important component part of medical science education. It imparts very important effects on cultivating students' learning spirit, practice skills, scientific research capabilities; yet the existing laboratory teaching has the following problems: (1) the contents of basic medical science laboratory work are primarily for coordinating with classroom teaching, concentrating on verification of theories; but they ignore the cultivation of students' skills and scientific research capabilities; (2) the laboratory work of basic medical science is scattered among corresponding courses, yet the laboratory

work of each course lacks longitudinal connection and coordination which causes inability to set forth a clear total requirement, based on a cultivation goal, for the training of students' laboratory skills. Students can not obtain a systematic cultivation and stringent training in skills such as operating techniques, report writing, data processing, experiment design, etc.; (3) laboratory work is scattered among corresponding courses, causing duplicate purchases of experimental equipment, low utilization rate and inability to bring the cost effectiveness of instruments into full play. Moreover, each department lacks sufficient qualified technicians to manage and operate instruments; (4) the existing instrument equipment are obsolete and far from being capable of adapting to the present development in scientific research technology, and to implement a full-scaled replacement within a shorter period is also out of the question. For this reason, we propose the following two reform schemes:

- (I) Separately establish medical science basic laboratory classes and an experiment supply system, and reorganize the writing of laboratory teaching materials and rearrange laboratory plan and the experiment supply room from the following areas.

1. The structural principles and utilization experiments of electronic instruments and computers: including electronic stimulator, recorder, colorimeter, electrocardiogram, electroencephalograph, computer, etc.

2. Chemical analysis laboratory classes: including chemistry, biochemistry, toxic chemistry, etc.

3. Morphological laboratory classes: including anatomy, histological embryo, parasites, microorganism, illness analysis.

4. Functionological experiments: including physiological, pharmacological, pathological experiments.

(II) Maintain a common laboratory and common supply room for various courses, i.e. each Teaching and Research Section is responsible for submitting a teaching plan, arranging teaching personnel to oversee, and the common laboratory will provide experiments conditions.

During the process of guiding students to conduct experiments, attention must be paid to cultivating students' basic laboratory skills, independent observation and analysis abilities, problem solving abilities, scientific attitude, scientific style and scientific thinking. After the students have mastered specific laboratory skills, they should be encouraged to design their own experiments and complete experiments independently. New experimental subjects can be provided under separate experiment groups for those outstanding students.

#### IV. Reform Examination System and Method, Stringently Enforce Examination Discipline

Examination is an important means for leading the students to study, and is also one of the standards to evaluate teaching effects. The kind of examination method that lead student to mechanical memorizing (of course some knowledge must be memorized) must be changed. An examination method that not only reflects the depth and width of the knowledge and theories the students have mastered but also reflects the student's ability to apply knowledge already learned and analyze and solve problems must be developed and laid down; standards for evaluating student's "attitude" is to be developed and laid down. We maintain that examination should be conducted for the courses learned (including required and selective courses) and also maintain that, after completing basic courses and before entering clinical study class, one periodwide comprehensive examination be conducted for each period. Those who fail the periodwide comprehensive examination are allowed to take it one more time and if they fail again, it will be counted as flunking one major course.

The examination results should truly reflect the study levels of students and should stringently enforce examination discipline. Students

who violate the examination discipline will be handled seriously. The execution of repeating the year, being sent to a lower year and expulsion system should be strictly enforced according to codes of student status management for students who fail the examination.

#### V. Enhance Clinical Practices, Upgrade Independent Working Capabilities of Students

The existing five-year teaching plan generally allocates two and half years for basic medical science and two and half years for teaching of clinical medical science during which one year is for production study and one and half years are for teaching of clinical theories. The teaching of clinical theories is basically also the pouring-into style and the contents of teaching have quite a few duplications of the contents of past basic courses which not only take up study time of students but, more importantly, also hamper the development of student's intelligence. For this reason, we favor:

1. Strengthen the construction of clinical laboratories to allow students to conduct studies of clinical diagnosis while combining with the status of patients in order to foster analytical capability.
2. Abolish the traditional way of teaching clinical classes and change clinical classes to primarily learn-on-the-job. During the learn-on-the-job process, students participate in making rounds of wards, case discussions, etc., combine with patients to conduct self-study and properly take part in some of the room service work. For cases that are rare but are required to study during the learn-on-the-job period, audio-visual teaching program or simulated patients can be employed for teachers to conduct special topic seminars for interns in a planned way.
3. Internship after graduation is an extremely important learning stage for school students and the guidance and management of internship must be strengthened. In order to make student concentrate their energy on learning we suggest that during this period it is improper for them

to sign up for the national joint examination and other types of examinations such as graduate school entrance examination, etc. which interfere with the internship; however, the completion examination for each course must be conducted as a standard for measuring internship results.

4. In order to satisfy the urgent needs of the Four-Modernization construction we also favor that, during internship in the fifth year, half a year be slated for internship at departments of internal medicine, surgery, gynecology, pediatrics and contagious diseases, and the remaining half of the time is used to concentrate on learning a certain field, i.e. the so-called directional internship in various departments.

#### VI. Improve Method of Teaching, Upgrade Quality of Teaching

The reform of method of teaching should be centered around abolishing the pour-in style and lead the students to conduct self-study. For this reason, we favor that:

1. The required major courses be arranged between 3,168-3,458 class hours with every week controlled between 22-24 class hours for the five-year medical colleges;

2. Compress lecturing time. The lecturing is primarily for assisting students to grasp key points, difficult points and new contents and for enlightening the thoughts of students.

3. Enhance audio-visual teaching program. The audio-visual teaching program is a kind of new teaching means adopted in our country in recent years. It is not only a kind of teaching means but is also a kind of reform of the way of teaching. Implementation has proved that it can not only obtain better results than simple dictating but also has important effects on starting a second classroom to assist students to probe into new knowledge domains. Teaching personnel should be encouraged to participate in writing audio-visual teaching materials and to utilize audio-visual teaching program.

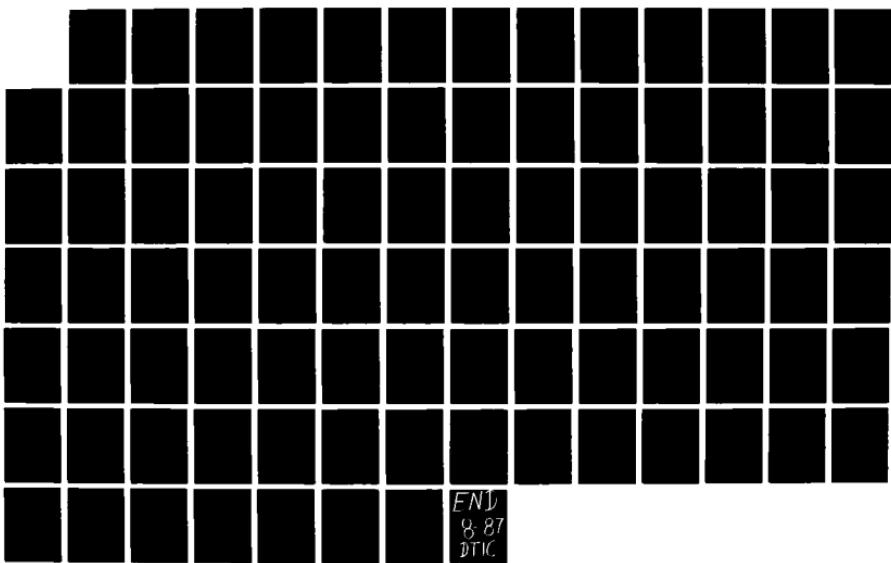
The last problem which still must be brought forth is that the reform of teaching of medical science is a long-term and complicated problem, and the activeness of all teaching personnel, including the teaching activeness of teacher's aides and nurses must still be mobilized. Attention should be paid to the renewal of their knowledge and skills, to care about their lives, study and promotion of teaching titles. Only this way can they be united under the leadership of the party Central Committee and can the decision on education reform made by the Chinese Communist Party Central Committee be thoroughly fulfilled, thereby making the reform of teaching of medical science proceed smoothly.

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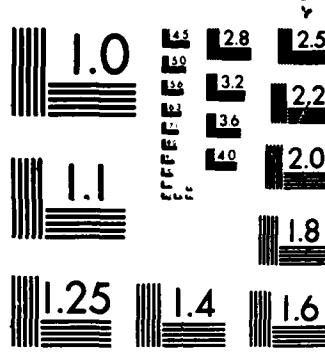
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## CONDUCT THE REFORM OF TEACHING OF LITERATURE AND SCIENCE COURSES AT ADVANCED SCHOOLS IN A SYSTEMATIC AND ORGANIZED WAY

Xia Ziqiang

Teaching Materials Newsletter (Beijing), 1986. 1. 1-4

At present, under the spiritual guidance of the "On the Decision of Reform of Education System Made by the Chinese Communist Party Central Committee", advanced schools are conducting the reform of teaching. Next, several related problems in the reform of teaching will be discussed.

### I. Guideline for the Reform of Teaching

We had proposed such guideline for the reform of teaching literature courses: conduct reform in a firm, systematic and organized way to make literature courses better adapt to the needs of socialist modernization construction. This guideline, in a certain sense, obviously also applies to science courses. That is to conduct reform in a firm not hesitant way, in a systematic not fragmented way, in an organized not impetuous and incoherent way. Comrade Deng Xiaoping had pointed out that education must face modernization, face the world and face the future. The basis for the three faces is to face modernization. As long as facing modernization is earnestly achieved, then can the world and

the future be faced. The results of educational undertaking and the success of educational undertaking fundamentally depend upon how well it serves the Four Modernizations and how well it adapts to Four Modernization. When we see the urgency and importance of reform, meanwhile, we should also see the complexity and formidability of reform. Looking back at past education reforms, there are many experiences and lessons from which we can learn. The old proverb "Ten-years to grow a tree, One Hundred-years to cultivate a person" shows that the effectiveness of a teaching experiment is very difficult to see in a short period of time; this is exactly what makes the task of education reform formidable.

In order to conduct education reform, we must clarify the following guiding thoughts.

First, adhere to the thought guidance of dialectical materialism and historical materialism; in other words, uphold the thought guidance of Marxism. Attention must be paid to the struggle inside ideological domain. Under the current situation of open policy, it is necessary to stress this point. We must learn from foreign countries and learn every useful thing, but there should be analysis. Recently, Comrade Deng Xiaoping had stressed and pointed out that a school of so-called "liberalization" thought appears in China after the crackdown of the "Gang of Four", which worships western democracy and freedom and negates socialism. It is not allowed to do things this way. China must be modernized, but liberalization is absolutely not allowed and the road of western capitalism can absolutely not be taken.

There is such a theory that says truth is pluralistic and believes Marxism is just one truth among many other truths; yet in fact it does not acknowledge that Marxism is the theoretical basis which guides our thoughts. We believe that the appearance of Marxism is a great leap in mankind's science history. Marxism represents the most advanced proletarian interests and vast masses' interests and reflects the direction of historical development. Marxism has been continuously examined by various implementations during the one hundred-odd years since it was

established; especially it has been proved by the social implementation of hundreds of millions of people to be the most correct and most scientific world outlook and methodology which makes Marxism the crystallization of mankind's intelligence. Marxism is not a closed system in that it is good at constantly absorbing new achievements in scientific development and is richly developing in implementation. So, Marxism is a truth and is not to be mentioned in the same breath as those theories that contain a few grains of truth; just like a water droplet can not be compared with the sea, Marxism cannot be compared with those erroneous, reactionary theories. To publicize truth, pluralism is the display of insufficient understanding of Marxism and the more serious damage is the wavering of the position of Marxism as the guiding thought of our country.

Second, adhere to the "Double Hundreds" guideline and allow various experiments to be conducted. The current reform of teaching is very different from the past ones. In the past, under the thought guidance of "taking class struggle as the key link", the reform of teaching was invariably linked up with criticism against the bourgeois to carry out "pull the white flag up, plant the red flag" and mass movement and administrative order against academic problems. This just did not work. Now we must not do things at a whim or dogmatically; and we must not carry out any more movements, though we must uphold the guideline of letting a hundred schools contend and have repetitive implementation. We must uphold experiments of various kinds to compare during implementation instead of jumping to conclusions. During the process of reform of teaching, differences in cognition and course of action do exist objectively, and equal and full discussions and experiments should be allowed. For instance, what kind of credit hour system is the best can be studied and compared through discussions and experiments. We should use the form of study, exchange and direct to promote reform, and at the same time corresponding measures must be laid down to encourage reform.

Third, adhere to setting off from the actualities of China and search for a Chinese-style road. There had been results learned from

the Soviet Union in the past, but it had also brought about some problems. In recent years, learning from the U.S. and Great Britain will also have quite a few problems. Presently, we have the resources to learn from the experiences of more countries and conduct comparison of their experiences. However, the purpose of learning is to combine with the actualities of China in order to search for China's own road. China is a big country with huge population, vast land, complex situations and unbalanced development, and the cultural and economic levels of various regions are not necessarily the same. We must form a kind of education system that is in line with the demands of China and is with Chinese breadth of spirit and Chinese characteristics. Numerous problems must be considered in conjunction with Chinese characteristics. On cultivation goal, for instance, should specialized talents or general talents be cultivated? When learning from the Soviet Union in the past, it was concentrated on cultivating specialized talents, i.e. the so-called experts, senior professional talents. But later on it was found that the student's scope of knowledge was too narrow to reach the level of expert in reality. Then, are we turning around to cultivate general talents like the U.S. and Great Britain? This must combine with the national conditions and actualities of China for consideration. The graduates in the U.S. and Great Britain do not go through joint placement, and after they start working they must receive continued education and returned education in order to be in keeping with the requirements of their jobs. It is different, however, for our graduates in that they be able to function immediately after they start working. So, the proper limits for "specialization" and "breadth" need to be searched for through repetitive experiments. Moreover, for example, problems about cultivating cream-of-the-crop students and how to face the majority of students must also be considered in conjunction with our country's characteristics. In the past we paid more attention on average development while insufficient attention was paid to selecting outstanding students, and this is not right. But, it is also improper to only stress the cultivation of cream of the crop while ignoring the majority; we must take the total interests of education into consideration. Things such as these all indicate that, during education reform, we must use the

actualities of China as a basis to search for our own road.

Fourth, adhere to the principle of linking theory up with actuality. We must carry through the principle of linking theory up with actuality to the entire process <sup>of</sup> education reform to better combine the cultivation of knowledge and capabilities. Linking theory up with actuality is a basic principle of teaching and is also the basic principle of education reform; linking theory up with actuality is also a line of thought which indicates that the purpose for learning theory is to solve practical problems. In the past we laid particular emphasis on imparting knowledge and ignored the cultivation of capabilities. Now the cultivation of capabilities is stressed but it must not be alienated from the teaching of knowledge either; the teaching of knowledge and cultivation of capabilities can not be separated or even opposed to each other. The principle of linking theory up with actuality still involves numerous aspects. At present, we must grasp reform with one hand and style of study with the other hand and pay attention to cultivating scientific attitude and scientific spirit so that a sound style of study of linking theory up with actuality is truly cultivated. Allegedly, some of the students now pay little attention to practicing basic skills and treat practicing basic skills as conflicting with cultivation of capability. Students of mathematics majors loathe to do more homework and even say what good is it to spend the energy to do the step-by-step derivation and step-by-step operation, knowing how is enough. Some students of foreign language majors also do not earnestly practice basic skills. They do not understand what the managing-type, and opening-type talents are, and believe that the managing-type, creative-type and opening-type talents do not need solid basic skills as long as they know how to socialize and are good at it. This is not right. In a knowledge area, speculation will not do and it will not work without a specific knowledge accumulation. Therefore, a very important issue in the reform of teaching is that the earnestly practiced basic skills must be realistically combined with cultivation of capabilities. This is an important aspect of the present principle of carrying through the linking theory up with actuality.

## II. Contents of Reform of Teaching

The reform of teaching at advanced colleges has the following several items of major content:

First, adjust the structure of advanced education. The "Decision" points out that: the structure of advanced education must conduct adjustment and reform based on economic construction, social development and scientific and technological advances. The condition of unreasonable course variety ratio of advanced education must be changed, the development of weak departments and majors such as finance, economics, political science, law, management, etc. must be accelerated and the growth of newly developed and frontier disciplines must be given aid to. It can thus be seen from this that the liberal art disciplines must have a great development. The percentages taken up by liberal art disciplines at advanced colleges in the past were too low, only taking up 20% of the total number of students. From now on the situation of unreasonable structure must be adjusted during the development. Liberal art disciplines are generally divided into the following three types:

One type is the basic disciplines such as literature, history, philosophy. This type of discipline is very important, but is not suitable to develop too many and is even more unsuitable to overdevelop; the main thing is to upgrade quality.

Another type is applied disciplines. This type of discipline must have larger development. Presently, there is a very big shortage in talents of finance, economy, political science, law, etc. Take foreign trade talents for instance, the current supply-demand ratio is 1:20. Moreover, take the banking profession for instance, as the economy develops the effects of banks become greater and greater. Banks must become the lever of economic activities, yet the talent situations lag far behind demands. There are the same situations in the area of law. In 1983, the number of students enrolled in Law Schools only took up 1.2% of the total number of students enrolled in universities. The shortage in law

talents is a big defect for the development of society. Management profession is also a discipline in urgent need of development. There are the condition issues for this type of discipline to accelerate development, and the current faculty shortage is an important condition among them. Some special methods must be employed to solve it.

The third type is the newly developed disciplines and blank disciplines such as sociology and political science which have been discontinued for a long time, and must be developed gradually. The situation of inter-integration and inter-penetration between various disciplines of natural science, between natural science and engineering technical science, and between natural science and social science to produce new disciplines. For example, environmental science actually involves disciplines such as biology, geology and chemistry, etc. Of course, environmental science does not just involve natural environment, it also involves social environment and social science. Moreover, for instance, management discipline is also a comprehensive science which involves economics, computer science and mathematics. We must give aid to weak disciplines on the one hand and must also pay close attention to the development of new disciplines on the other hand. This is an important content of reform of teaching. The following items should be noted in the development of these newly developed disciplines: (1) avoid the practice of rushing headlong into mass action and persisting in acting blindly to search for new things without considering the ability of school and needs of society. Currently, there is a kind of omen of "trying to be the first to do something". For example, bioengineering or genetic engineering is a science still trying to find its way. Such new discipline requires larger amount of investment just to get started and its research results still require a very long process before they can become reality; therefore, it is impossible for all the schools to run a Department of Bioengineering. (2) Attention must be paid to the school's cultivation goals and tasks. Can normal universities operate certain non-teacher training undertakings? It should be said that it is all right to operate them if there are really needs and conditions for them, but the primary task of a normal university must never be

forgotten, and that is to cultivate faculties for secondary schools and contribute to upgrading the quality of teaching at secondary schools. Presently, some of the teacher training colleges are not content with their tasks and are doing a lot of non-teacher training majors to the point where the non-teacher training majors are even more than the teacher training majors, and this is improper. We must take the entire situation into consideration, and every school should find its own most suitable position within the entire educational system with each one doing its own duty within the entire educational system, rather than emulating one model. (3) The teaching plans and course arrangement of these newly developed majors are now usually the "assorted cold dishes" without a reasonable knowledge structure. We should pay attention to collecting foreign and domestic materials and summarize our own experiences to come up with a refined scheme.

We must gradually make the structure of advanced education more in line with the demands of the entire economic construction and more in line with the demands of the construction of two civilizations. The areas of talent cultivation, disciplines distribution and layers of education must be gradually made reasonable.

Second, adjust cultivation goal and major arrangement. Now, whether it is liberal art or science there appears a trend of multi-channel and multi-direction in the direction of talent cultivation. Especially for liberal arts, more practical workers must be cultivated; whereas the weights of cultivating scientific research talents and teachers of advanced schools are correspondingly lowered. To be cultivated as practical workers means to become the management cadres of the state, and this is a practical need. Experiences are still lacking as to how to cultivate this kind of talent and how to adjust cultivation goal and majors arrangement. We must not have this misunderstanding to think that cultivating practical workers is lowering the standards. In fact, the requirements for competent management cadres are not necessarily lower than those for university teachers or research personnel. In the area of depth of a major, it may not be that specialized, but the requirements

should be higher in the area of knowledge breadth and capability to analyze and solve problems as well as movement capability. We can divide the talents cultivated into two types of research-type and management-type. The management-type talents must be more familiar with government organizations, national codes including forms and formulas of official documents, etc. and must have movement capability. The recently developed administrative science and political science majors are cultivating talents based on this direction. This kind of management-type and administrative-type talents also need to practice basic skills well. But there is great difference in cultivating research-type talents as far as cultivation method, cultivation path and knowledge structure are concerned.

Scientific disciplines are also the same situation. On the one hand we must cultivate some research-type talents and the situation of too high requirements in basic theories, too much professional training and too heavy a burden for students in the past must be properly resolved. This kind of talent must have more systematic, broader basic theories and stronger scientific research training to adapt to the requirements of multiple disciplines research, including the needs of exploiting and applied research and teaching work. On the other hand, we must cultivate some talents of applied disciplines. The characteristics of scientific disciplines must be demonstrated to make these talents possess more solid basic knowledge and stronger creative capability. General universities in various regions should not blindly emulate the national key universities and should treat cultivating secondary school faculties as their own primary task while facing the locality and paying attention to adapting to a locality's needs for talents. We must progressively relax the caliber of majors, and especially, they must be in line with China's national conditions. We must study and investigate well the important issues such as cultivation goal and major arrangement, etc.

Third, the reform on contents of teaching and methods of teaching. We must reduce and renew contents of teaching, and increase implementation linkages. Various schools have already adopted some methods and

measures. Some schools are offering computer classes in both liberal art and scientific disciplines. Still more schools are offering reference-research classes. There must be constant search and creation for these reforms. The reform of teaching, especially the reform of contents of teaching, must be built on the basis of research and it must be organized to conduct a collective assault on key problems. Some schools are preparing to study the reform of Marxism philosophical principle classes. They start with exposing contradiction, do study on special topics and in the meanwhile absorb the advanced results of foreign countries. Now the Soviet Union also places heavy emphasis on the reform of philosophical principle. The reform of philosophical principle requires a breakthrough from the entire system, whereas the breakthrough of system also requires that it be divided into several spacial topics and that it relies on the push from special topics research. The accomplishments of modern natural science must be absorbed, otherwise the interpretations for some philosophical viewpoints still stay at the level of Engels' time, such as the concepts of time and space. When Engles was writing the "Anti-Dulin Theory" he only saw Newton's principles of mechanics and not yet learned about the theory of relativity, so his interpretations of the concepts of time and space were still obsolete. The interpretation of relationship between cause and consequences is also the same way. Now that natural science has been greatly developed forward and that natural science itself has set forth many philosophical issues which are worth our further study. We must also pay attention to absorbing the exceptional accomplishments of history of the Chinese philosophy to enrich the development of philosophical principles of Marxism and also absorb the new achievements in the study of Marxism principle in the world. Department of Economics must start from investigation of Chinese socialist economy to study the economic theories of socialism. The science of law must study the theory and practice of socialist legal establishment. By the same token, the art theories of Marxism and historical theories of Marxism must all begin by developing and upgrading theories so as to motivate the development of various disciplines. This kind of reform is also being conducted for scientific disciplines. As a basic course, advanced mathematics is

customarily divided into three parts of mathematical analysis, algebra and geometry. These three parts have no coordination among one another, each carrying on its own business. In the past more emphasis was placed on mathematical analysis while ignoring algebra and geometry; however, as a mathematical tool, algebra and geometry have now been rapidly developed. This time the reform has not only exposed existing problems but has also set forth reform ideas and the preliminary outlines and teaching materials have been written. The three parts are better integrated from the level of science.

The reform of contents and methods of teaching is a prolonged, formidable task. We plan to conduct progressive study major by major and produce the outlines for teaching reform for each major. On the one hand, there must be unity such that they are consistent in the general direction and principle; on the other hand, there must be flexibility with each school making its own choice based on its own conditions and forming its own characteristics.

Fourth, the reform of teaching systems. Required courses must be reduced and selective courses increased while implementing credit-hour system, dual-degree system and increasing self-study time as well as extracurricular activity time. Currently Qinghua University has three semesters, making the summer vacation a "small semester". Two-hundred-odd courses were offered during the summer vacation of 1985 at Beijing University and the courses were counted as good as credit hours after the students completed them during the summer vacation. There are students in foreign countries who are able to get two degrees by taking summer vacation courses. Based on the needs of the state, students can transfer department, change major according to their own will and condition, thus part of science and engineering students are encouraged to transfer to disciplines such as finance, economy, political science, law, management, etc. In the management system of teaching we stressed the guiding effects of teachers during the teaching process in the past while not paying too much attention to studying the rules of learning of students and bringing their learning initiative into play. In the

past obeying a teaching system by the students was stressed more whereas not much attention was paid to an education system adapting to the rules of learning of students.

In addition, the issue of reform of teaching organizations. In the past the teaching organizations had great influences, but there also existed some problems. For example, the basic courses and major courses are artificially divided, causing the situation of scientific research to be separate from teaching. Part of the teachers who teach basic courses with a heavy teaching load can not conduct scientific research and are not being upgraded quickly in their course levels; part of the teachers who teach major courses with a lighter teaching load can conduct scientific research work, yet their scopes of knowledge are narrow. We should conduct corresponding reform on teaching organizations to make them generate a kind of mechanical effect to condition the full development and upgrade the level of a teacher's scope of knowledge. Of course, there is still the transformation issue of thought education and this is an important issue. Thought education reflects in various teaching works, and the transformation of thought education must be promoted through the reform of various specific teaching works.

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## TENTATIVE COMMENTS ON THE METHODS OF TEACHING AT UNIVERSITY

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There is a traditional concept which believes that it is not necessary to be particular about methods of teaching as long as the teachers are learned. As the reform of advanced education develops, this concept is also somewhat changed. Then, what kind of method will it be which fits the current college education better? What kind of method will it be which is more conducive to cultivating the student's creativity?

### I. Methods of Teaching at University Should Be Conducive to Bringing the Two Activenesses of Teachers and Students Into Play.

In the reform of advanced education, numerous ideas for motivating the activeness of teachers have been proposed. However, there is still very little discussion on how to motivate the activeness of students. I believe that increasing student's interest to learn is an important aspect in motivating the activeness of students. Soviet Educator Kang G. Wusensky once said that: Without any interest and conducting learning just by compulsory forces (naturally this kind of force originates from good will--out of love for the one receiving education) will strangle

student's propensity for learning, and without this kind of propensity the student will not have great progresses ". However, interest is not condensed and unchangeable, whereas it can be cultivated and changed. Under many circumstances, the lack of interest in a certain course is due to lack of understanding about this course and its relationship with other courses as well as the educational values of this course. Once they are truly understood unlimited fun will come along. Conversely, there are also such situations where students are very interested in a certain course at the beginning, but due to improper methods of the teacher the student's interest is killed, making them feel extremely disappointed. Therefore, it is not enough just to allow students to freely select courses within the scope of plan; the methods of teaching should also be reformed.

In order to make students break away from the passive situation of learning and fully motivate their activeness, initiative, the key lies in, in terms of methods of teaching, arousing student's strong need for obtaining knowledge, making them establish learning on the basis of internal needs, not external enforcement. In order to achieve this goal, methods such as questioning teaching method and probing teaching method are effective.

The basic ideas of questioning teaching methods are: introduce to the students problems of said course or related courses, controversial problems, frontal problems or new line of thinking and new method for solving problems of related courses; encourage students to think through problems, raise questions and advocate stumping the teacher; cultivate student's capability to raise questions, analyze and solve problems. Contemporary scientific philosopher Polpoor especially emphasizes the importance of questioning. He says: "It is exactly due to problems that we are motivated to learn, to develop knowledge, to experiment and to observe". Only by raising questions can people's curiosity be aroused and student's interests to learn be attracted, allowing students to enter the domain of scientific research as early as possible thereby starting to learn and create actively. Given this, the present

situation of textbooks and classroom lectures being primarily for giving answers should be reformed. Especially, the questioning teaching method should be greatly promoted and students should be given greater right of self-determination in the studying of major courses, and students should be allowed to freely select theses or design research topics.

The probing teaching method is closely related to the questioning teaching method. Its basic ideas are: break some rules in teaching and boldly bring students to the front edge of the course's scope or border regions of multiple courses, making students recognize their own insufficiencies of knowledge and lacking of capability in the process of probing thereby arousing their interests and enthusiasm to learn new knowledge and cultivate capability to probe during probing. This also runs counter to traditional teaching method. The traditional teaching method, "follow in order and advance step by step", is seen as a principle which must be obeyed in learning, just like without A, B and C, D can not be learned. This is correct in a certain significance, but it must not be absolutized. Nobel Prize Physics Winner Weinburger said: "The key to cultivating a superior scientific talent lies in allowing young people to stop learning and begin to become researchers of physics. Yes, everybody starts as a student and you take courses; the professor tells you what to read and gives you problems to work on; but you know he will not give you a problem that does not have an answer and the problems are all related to what is being taught in classes. It is totally different in the real world. First of all, you do not know where the problem is and you also do not know whether it can be solved, let alone know what method to use to solve it. In order to assist students to complete this transformation, classroom style teaching must be discontinued at a specific stage and turned to unconventional ways of learning. Ask student to learn Q even before teaching him A,B,C,...; and when it is learned that one must understand M before one can learn Q, then one turns back to learn M." He had personal experience in this point. He went to study for one year at the Institute of Copenhagen which was led by the great physics master Boer after he graduated from college. he was filled with enthusiasm of thirst for knowledge when he

set out on his journey. However, Boer did not give him any class schedules when he arrived at Copenhagen, just assigned him a research topic in nuclear physics for him to probe into. He did not study the contents of this area in college, therefore, he studied them while doing the research at the same time and gained gratifying achievements. In his research career later on Weinburger had profoundly realized the benefits of Boer's carefully cultivated independent research capability.

During the few years in college students are unable to learn all the knowledge and, therefore, cultivating the probing spirit and capability of students and passing on methods of probing new domains to students are extremely important.

## II. Teaching Method of University Should Make the Knowledge and Capabilities of Students Upgrade Simultaneously

A traditional viewpoint holds that school is a place for imparting knowledge. This is not comprehensive judging by today's standards. Imparting knowledge and cultivating capabilities are supplementary to each other. People with just knowledge and without capabilities, or with capabilities and without knowledge are nonexistent. Advanced schools must not only impart knowledge but must also cultivate student's capabilities. Students should be made to not only have a reasonable knowledge structure but also have a reasonable capability structure as well as reach the maximum knowledge activation rate.

This requires that the guidance effects of teachers be brought into full play. The guidance effects of teachers, in addition to the guidance in selecting courses and selection direction described in the above text, must also be displayed in providing larger amounts of information, that is, employing the larger amount<sup>of</sup> information teaching method in teaching. The basic ideas of the large quantity information teaching method are: provide more information under the condition that students are able to absorb, that is to say that the teachers should try hard to lift facts and knowledge well known to students to more profound rules, principles or questions and introduce to students using common

expressions. If the contents teachers talk about are already well known to students beforehand, or are incomprehensible to students, then as far as students are concerned, the amount of information they have gained is equal to zero. A teaching method with zero amount of information is really the biggest failure as far as teaching is concerned. If a teacher can not adjust his own output according to the feedback information of teaching subjects, then this teacher is only equivalent to a textbook. Therefore, the amount of information gained by students should be used as one of the standards for evaluating teacher's classroom effects.

Meanwhile, the guidance effects of teachers are also displayed in guidance of method of learning and method of research. To be sure, relying upon a student to do his own search will find the proper method of learning and method of research one of these days, but his creativity years could be gone by the time he has found those methods.

In order to make teachers bring their guidance effects into play better, the teacher himself must be involved in research and the research results are not to be measured just by current economic indexes alone. <sup>The</sup> Research result can be reflected in its technical application values and also be reflected in its theoretical values as well as being reflected in its educational values.

As for the issue of capability structure of students, the author believes that it is better to cultivate "semi-products" who have unique styles with some possessing true expertise while others have a little less than to cultivate mediocre talents with seemingly all-around capabilities. This is just like an enterprise which should not be either small yet all-encompassing or big yet all-encompassing, one's capabilities should also have specialized field. For example, some people can display extraordinary organizational management capabilities, some people can display outstanding theoretical thinking capability and still other people can display uncommon experimental observation capabilities, etc. But it is impossible to make every capability within

one's capability system reach its best. Therefore, students' specialized fields should be earnestly cultivated and at the same time their cooperative spirits and qualities are also cultivated so that the best effects in research, design and creation are bound to be gained through capabilities composed of cooperation. Thus, it will be effective in facilitating the cultivation of talents and process of research.

It is without practical significance judging one's amount of knowledge without considering one's capabilities and it is impossible to purely judge one's strength of capabilities without considering one's knowledge. Therefore, the important thing is not in judging the total amount of knowledge one has but in judging the total amount of knowledge one can flexibly utilize. If  $L$  represents the total amount of knowledge that can be flexibly utilized, then  $H(K)=L(K)/K$  is called the activation rate of knowledge. Assume student A:  $K_A=1,000$  units,  $H_A(K)=1/100$ ; student B:  $K_B=100$  units,  $H_B(K)=90/100$ , then even though  $K_A > K_B$  but since  $H_A < H_B$ ,  $L_A(1,000 \times 1/100 = 10) < L_B(100 \times 90/100 = 90)$  and hence student B will be more creative than student A. Therefore, in teaching we must not only pay attention to imparting knowledge but must also not neglect the cultivation of capabilities to flexibly utilize knowledge, and we must work hard to make the student's activation rate of knowledge reach its maximum.

### III. Teaching Method of University Should Make Students Maintain A Necessary Tension Between Convergence-Type Thinking and Divergence-Type Thinking

The two kinds of thinking capabilities of convergent thinking and divergent thinking are both required for scientific creation, they are like the two sides of a coin which are supplementary to each other and neither one can be neglected. One will let his imagination run wild and achieve nothing if only the divergent thinking is developed; one will become prejudiced and without any innovation if only the convergent thinking is developed. Just like what the famous contemporary Scientific Historian and Educator Kuhn once said: "the divergent thinking and convergent thinking are equally important to the progress of

science. These two forms of thinking are certain to conflict each other; therefore, one must be good at maintaining a kind of tension between the two. This kind of tension is exactly the chief condition for us to conduct scientific research." Therefore, college education should simultaneously develop these two forms of thinking. But "from the inception of scientific development till now people have always put more emphasis on the strict training convergent thinking." Typical examples have been invariably used in textbooks to cultivate student's convergent thinking, and "these specific examples with textbook-provided answers are accepted as "rules and regulations" by people of the same trade and then they require that students solve on their own those problems which are close to the textbook examples in method and substance". Yet, the cultivation of divergent thinking has been neglected. But if there is no divergent thinking and no large number of scientists with characters of highly active thinking and open thinking, then there will not be scientific revolution and there will be little scientific advances. Therefore, the teaching method must be reformed and, while developing student's convergent thinking, attention must be paid to developing student's divergent thinking.

In order to cultivate student's divergent thinking and maintain the necessary tension between convergent thinking and divergent thinking, students should be allowed to have the opportunity to establish contacts with various type of teachers during their study at college such that student's intelligence deficiency due to teacher's intelligence deficiency can be prevented. Therefore, class hours of each course should be reduced, or one course is divided into 2-3 courses and let different teachers teach thereby making the opportunity of student establishing contacts with various type of teachers increase two to three times. It seems to affect some imparting of knowledge looking from traditional points of view, but students need only pay attention to absorbing strong points of each teacher to be subject to the nurture of various forms of thinking. The teacher's different styles and different characteristics complement one another. This kind of multiple teacher teaching method is undoubtedly beneficial to maintaining that

kind of necessary tension for students. The inventor of quantum theory Plank had two teachers while at college who had exerted greater influence on his development later, and they were Gilhoff and Holmhertz. The styles and teaching characteristics of these two teachers were entirely different. Gilhoff earnestly prepared his materials before teaching classes and his teaching followed clear order which gave students the opportunity to obtain training in convergent thinking; whereas Holmhertz was exactly the opposite, he never prepared his materials when teaching and liked to derive with the students on blackboard. Whenever an error was found, he would erase everything and start over thereby giving students the opportunity to see a master way of thinking problems over and handle problems, and receive training in divergent thinking. It was exactly by absorbing the strong points of the two of them that Plank was able to maintain a kind of tension thereby displaying rich scientific creativity. The proposer of atomic planetary structure Lucifer also had two teachers while at college who had greater influences on him. One was Professor Beckton and the other was Professor Cook. The two of them also had their own characteristics. Beckton was not bound by traditional viewpoints and was good at motivating students to think problems over making him the divergent thinking type; whereas Cook was exactly the opposite, he followed strict, regular method to teach making him the convergent thinking type. Lucifer also absorbed the strong points of the two of them and maintained a kind of tension thereby displaying rich scientific creativity.

One of the creators of creation engineering Osborn believed that: a person's imagination, due to years of habit, often tends to circle around and around in a narrow range and, therefore, discussion form can be employed to break the fixed way of thinking, penetrate the formed rule of thinking and open up new train of thought. It is apparently also beneficial to cultivating student's divergent thinking by applying the discussion form in teaching and it can be called the discussion teaching method. British Educator Newman said: if there are two universities with one providing neither boarding nor overseeing teacher and degrees are awarded to anyone who passes the test after taking several

courses; the other university has neither professors nor tests, just putting many young people together for three to four years and then letting them leave, then he would rather choose the latter. "How do you explain this? I think it is like this: when a group of young, enthusiastic, straightforward, rich-in-sympathy and keen-in-observation people ---most young people are this way, gather together and freely interplay even if no one teaches them, they are certain to learn from each other and obtain new thoughts and viewpoints, fresh thought materials as well as undoubtable principles for judgment and action." This indicates from one side the importance of discussion. Free academic discussions without any restraints is an important way for broadening train of thought, inspiring intelligence and developing capability of divergent thinking. Creator of control theory Wener took part in the scientific discussion class organized by a professor while he was studying at college. He later remembered and said that the discussions among classmates and the most influence on him instead of teaching by professors. During the period he taught at Massachusetts Institute of Technology, he organized many discussion classes on various courses and they bore bountiful fruits. While working at the Bureau of Patent, Einstein organized a three-man philosophy symposium with Department of Philosophy student Sullivan and Department of Mathematics student Herbesit, and frequently got together to discuss scientific problems. This had important influence on Einstein's scientific creativity.

#### IV. Brief Conclusions

In order to cultivate student's creativity, as far as teaching method is concerned, the two activeness of teacher and student in teaching must be brought into play; to educate students must make their knowledge and capabilities upgrade simultaneously; to cultivate capabilities must maintain the necessary tension between convergent thinking and divergent thinking.

There are a variety of teaching methods with which student's creativity can be cultivated, such as questioning teaching method,

probing teaching method, large amount of information teaching method, multiple teachers teaching method, discussion teaching method, etc. The various methods are supplementary to one another and a certain method can not be unilaterally stressed while neglecting other methods.

## SCHOOL CHARACTERS IN JOURNALS OF ADVANCED SCHOOLS

Chen Bing

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The journals of advanced schools are run by advanced schools and are either comprehensive or single-discipline periodicals in academic theories which primarily reflect the teaching and scientific research achievements of affiliated schools. The academic theory character of journals of advanced schools are well known and have been recognized by everybody, and the operational guiding thought of each journal is more clear-cut in this aspect and pays doubled attention to this through which it is being energetically embodied in the operations of the magazine; the editors of journal of advanced schools and the vast readers frequently also use this as the important standard to measure the quality of each journal. Undoubtedly, the aforementioned understanding and practice are correct, but they are not comprehensive enough. Presently, the understanding of school characters in the journals of advanced schools between the journal sectors of advanced schools and the vast readers is still not compatible, or there is difference in degrees; hence, the embodiment of school characters in journal is not sufficient in the operations of the magazine which directly affects the quality and honor of the magazine. Therefore, the issue of school characters in journals of advanced schools warrents further investigation

and study.

### I. Journals of Advanced Schools Are Limited by the Nature of Advanced Schools and Should Highlight the Characteristics of Advanced Schools.

The advanced schools of our country, based on the differences in their professional natures and cultivation goals, are basically classified into two major types of comprehensive university and professional colleges. Professional colleges include different fields such as teacher training, politics and law, finance and economics, foreign trade, medical science, geology, mining, art, physical education, etc. Now that journals of advanced school are comprehensive and single-discipline periodicals in academic theories run by advanced schools to primarily reflect teaching and scientific research achievements, they must, while embodying academic theories, embody the school nature of affiliated schools, that is, school characteristics. Otherwise, they will not be much different from other magazines of academic theories and lack the distinguishing features of each advanced school.

Comrade Mao Zedong pointed out in the "Theory of Contradiction" that: "For every kind of material movement form, its common point with other various movement forms must be noted. But, most importantly, the special point must be noted for the things which become what we use to understand the basics of matter. That is to say that only by noting this point can it be possible to distinguish matters." ("Selected Works of Mao Zedong", Volume 1, page 297) For journals of advanced school to embody the characteristics of advanced school, there must not only be common quality of the nature of advanced school but must also be individual quality of advanced school. With regard to individual quality for instance, the task of advanced teacher training college is to cultivate qualified secondary school faculties with all-around development in morality, intelligence and body. Its individual quality is the "teacher training character". Educational courses are the embodiment of "teacher training character" and are the major marking in which advanced teacher training colleges differ from other advanced colleges. Therefore, the journals of advanced schools should, under the premises

of guaranteeing their characters in academic theory, especially reflect teaching and scientific research achievements in areas such as pedagogy, psychology, teaching method, history of education, educational esthetics, educational practical training, class director work, etc. and earnestly study the science of education and rules of education in order to highlight school characters of its own journal.

The pioneer of journalism, publication and editing work Mr. Zhou Taofen once said that: "Without individual quality and characteristics, the survival of the magazine is already in trouble, let alone hoping to have any development." (Collected Works of Taofen(3), page 79) As long as we compile and publish journals of advanced schools, the school characters must be embodied and own school's distinguished qualities highlighted. Without characteristics, it will become "a thousand magazines with only one cover"; losing characteristics, magazines will not have vitality.

## II. Journals of Advanced Schools Should Bring Affiliated School's Discipline and Locality Superiority Into Play to Run Them With Their Own Characteristics.

Each advanced college throughout the entire country has, due to differences in school nature, cultivation goals, major establishment, faculty forces, library information, experimental equipments, school location, etc., formed different discipline and locality superiority. Each journal should fully utilize and bring the superiority into play to run it with its own characteristics and embody the school characters of said journal.

In the advanced colleges of our country, some lead in the research in genetic engineering domestically; others are recognized worldwide for their research in literature, history and philosophy areas; still others conduct quite a lot of research in archaeology and geology areas, etc. The journals of these schools should reflect this key point in order to make own school's characteristics stand out.

In addition, each advanced school is located in different regions and provides the vast faculties and students with conditions "richly endowed by nature" for research in different academic domains and different topics; these "waterfront pavilions" provide the vast faculties and students with the convenience of "getting the moonlight first". For example, colleges located in Shenjun Special Economic Region and other coastal open cities can combine their own schools' special fields to conduct studies in theoretical and academic problems such as economics, culture, open to foreign contacts, China-Foreign joint ventures, law establishment of special region, etc.; colleges located in the minority peoples regions in the Southwest and Northwest can combine their own schools' special fields to conduct academic studies and social investigations such as history, literature, language, art, law, religion, customs, etc. of the minority peoples in the regions where they are located. To reflect on this in the school journal is undoubtedly significant and influential, and to do it this way will make their own journals possess characteristics and naturally, the school characters of affiliated journal will be embodied. In addition to highlighting the characteristics in the contents of journal, there must also be unique features in the compilation and art fillers areas of journal to give the readers the enjoyment of beauty and better service in contents.

### III. Journal of Advanced School Should Primarily Reflect the Achievements in Teaching and Scientific Research of the Affiliated School.

To primarily reflect the achievements in teaching and scientific research of the affiliated school is another embodiment of school characters in journal of advanced school. Each advanced college has a group of learned discipline leaders and key teachers in various discipline domains; they are the central forces for teaching and scientific research at their schools and are also the important relying forces for cultivating "new rising talents". Actively organize their theses and the theses of graduate students and middle, young teachers under their guidance in order to guarantee the primary source of articles for the

journal. The theoretical understanding in this problem by comrades in the journal sector of advanced schools are basically consistent; however, there are often deviations due to various reasons in the specific thorough execution of this compilation guideline.

Some journals frequently like to publish more articles by famous scholars, experts and professors because of stressing academic and theoretical characters in order to raise the status of said journal and expand its influence; other journals stress that "everybody is equal before quality" and then often select and use more external articles; still other journals are indeed forced to use more external articles sometimes due to insufficient internal articles or poor quality; some journals admittedly are indeed forced to accept individual external article that is of equivalent level to internal articles sometimes due to certain reason. All of these have not been able to better insist on the magazine operations guideline of primarily using internal articles, thereby also affecting the embodiment of its school characters.

In addition, when arranging the ratio of internal and external articles, some journals often count articles sent by such alumni as undergraduate and graduate students, etc., even by those teachers who have already been transferred as internal articles. It could be justified to do it this way, but strictly speaking, "reflect the achievements in teaching and scientific research of affiliated school" should be interpreted as reflecting primarily the current achievements in teaching and scientific research of affiliated school in order to promote continuing upgrade of the level, strive for producing more talents and producing more achievements and contribute more to the construction of the Four-Modernization. This is also determined by the aim of operating journal of advanced school. The research achievements by alumni and transferred teachers, though they are related to the Alma Mater and are winning honors for the Alma Mater when published in the journal of the Alma Mater, are not the achievements of school members after all and it is obviously not entirely appropriate to count those articles as internal articles.

The journals of advanced schools are open academic theory magazines run, compiled and published by advanced schools; therefore, other than academic theory and school characters they also have their social characters which are not only oriented toward the school internally but are also oriented toward the society and their sources of articles should primarily come from within the schools; to appropriately select from the society, especially selecting articles by some experts, scholars and professors in the society and comrades with practical experiences from actual departments, to supplement insufficiency in certain academic research at their own schools, inspire and promote further research of certain disciplines at their own schools is very beneficial and is also totally necessary and feasible. But it must never become "the secondary supercedes the primary" or "share equal glory" in order to avoid undermining or affecting the activeness of own school's teachers, thereby causing outflow of certain quality internal articles, affecting the quality and reputation of own journal and deviating from the guideline of magazine operations.

#### IV. Journals of Advanced Schools Should Embody the Comprehensiveness of Various Disciplines of Own Schools and the Comprehensiveness of Teaching, Scientific Research and Management.

Journals of advanced schools must not only reflect the teaching and scientific research achievements of the affiliated schools' primary majors but must also reflect the research papers of basic and common courses; must not only reflect the achievements in the areas of teaching and scientific research but must also reflect the research papers in areas such as educational system reform, management of teaching, journal operations, etc. Thus, some people may say that wouldn't the journal become a dish of "chop suey"? but I believe this has actually been determined by the school characters of the journal. Any advanced college is composed of a variety of disciplines, even for colleges with a single major its establishment of major is not possible to be singular and there are several dozen-odd kinds ranging from basic disciplines to major disciplines. If the advanced educational undertakings are to be developed, each school can not do without major branches such

as teaching, scientific research, management, journal, etc. Therefore, the academic research achievements of these branches should all be reflected to varying degrees in the journal.

The nature of journal of advanced school is different from those of theoretical publications in the society or other social magazines; for instance, "Philosophy Research", "Chinese Language and Literature", "Chemistry Bulletin", etc. specialize in publishing academic research achievements in a certain discipline field; moreover, "Popular Movies" and "Beyond the Eight-Hour" reflect a certain art field or more extensive subjects with rich content, various forms, both pictures and captions included and are easy to understand. These publications are apparently different from the nature of journals of advanced schools. Journals of advanced schools should pay attention to reflect the aforementioned two items of comprehensiveness and embody the school characteristics of the affiliated schools. Of course, differences should be set between primary and secondary areas when reflecting the comprehensiveness, but the secondary area must not be degenerated to the extent of "no reflection". In embodying comprehensiveness each advanced school may still appropriately open up related columns to properly excerpt, report, reference, feedback, etc. teaching and scientific research achievements published in domestic or foreign publications by its own teachers on a regular or irregular basis; thus, own school teachers' research achievements can be thoroughly reflected through this "window" which is undoubtedly a kind of encouragement and support for the teaching and research undertakings of these comrades that is beneficial to mobilizing the vast teachers' activeness for teaching and scientific research, conducive to cultivating talents and producing more achievements and promoting the upgrade of teaching and scientific research level. In this area, many journals have already put forth a gratifying step. For example: "Domestic Periodicals Digest" column of the "Nanjing Medical College Journal" has published excerpts of papers published in national publications by its own teachers and thus making the journal reflect all the important scientific research achievements. Moreover, the "Henan University Journal" has opened up the "Forum of Journal's

"Editing Undertaking" and its purpose is to enhance the research and investigation in the working theory and implementation of compilation of journal. Faced with the fact that currently there are still no specialized publications in the research of science of compilation and journal compilation work within the society and sectors of journal of advanced schools, the opening of this column undoubtedly has great significance and effects. To do research "journal compilation work in the journal of advanced schools is certainly the embodiment of the school characters for the journal of advanced schools. Moreover, some of the advanced schools have all opened up the "First Digest" columns separately. The first digest has functions such as propaganda, transmission, feedback, etc. of initial information, and it can provide opportunity for the unpublished outstanding achievements of own school's teachers to obtain social recognition and become fortunes of society. The first digest has its unique effects in developing information resources, accelerating information transfer and tapping talents. The opening of this column also embodies the school characters of journal of advanced school.

#### V. Titles of Journals of Advanced Schools Should Be Named After School names.

Journal is the collective term for academic theory periodical which reflects research achievements of philosophical social science and natural science. Current journals in our country mainly include two major types: one type is the comprehensive or singular academic magazines in natural science or philosophical social science published by various national or local research organizations and academic groups, such as "China Environmental Science" (the bi-monthly issue, sponsored by the Chinese Association of Environmental Science), "Soil Bulletin" (the bi-monthly issue, sponsored by the Chinese Association of Soil Science), "Social Science Review" (monthly issue, sponsored by Social Science Academy of Shaanxi Province); the other type is the journal of advanced school sponsored by various advanced schools. The title of journal of advanced school is generally called XX university Journal. This title not only marks the nature of that publication but also

displays the solemnness and refinedness, and at the same time it is easy to distinguish with other academic theory magazines in the society to embody the school characters of journal of advanced schools. Due to certain causes, some of the journals of advanced schools in our country are also not using school names as titles, such as "Literature, History and Philosophy" (Shangdong University Journal), etc. "Literature, History and Philosophy" is an academic theory publication with longer history in the journal sector of our country; it was established in 1951 and has been specializing in literature and history; it enjoys substantial influences both domestically and abroad and is also recognized both domestically and abroad. Currently, it has over thirty thousand circulations and is still called "Literature, History and Philosophy". Journals of advanced schools like these may have more objective effects by not changing the title to XX University Journal.

In recent years there have been journals of advanced schools which have changed or are preparing to change their names because of hoping to give prominence to the aims and professional characteristics or regional characteristics, or take the sales issue of the publications into consideration. I believe that the journal of advanced school should be correctly and fully understood from the basis of its nature, missions, effects and characteristics and that the academic theory characters and school characters of journal of advanced school must be upheld by naming the journal after the school thereby making the journal be worthy of its name and bringing the effects it is supposed to have into play. This is also actually determined by the school characters of the journal of advanced school.

Summarizing the aforementioned, the school characters of journal of advanced school is one of the important attributes of journals of advanced schools.

## THE CHARACTERISTICS OF CONTEMPORARY COLLEGE STUDENTS

Jia Ningchao

Journal of Jinzhou Teachers Training College: Liberal Art Edition  
(Liao), 1986. 1. 6-9

To cultivate a new generation with ideals, with morals, with culture and with discipline is the goal of political thought undertakings of advanced schools. The basic premises for realizing this task is to correctly grasp the thought characteristics of college students, understand the essence of their thought and its rule of development, practically and realistically evaluate the strong and weak points of contemporary college students and conduct purposeful though education, then can true effects be obtained.

Opinions vary as to how to understand college students. Pessimists believe that contemporary college students covet ease and material comforts, seek an easy life and be particular about material benefits, and that they are a generation who has a faith crisis against the party and socialism and is "a collapsed generation". Skeptics believe that contemporary college students are in a period of great changes where they wield both active and passive factors on international and domestic politics and economy, and on families and society. They are full of contradictions, change irregularly and are an unpredictable generation with multiple development directions. Optimists believe that contemporary college students are full of vigor and vitality, move actively

upward, pursue truth, are anxious to become useful people and concern about the destiny of motherland, and that they are the motive power which is not to be underestimated in the post of searching for new domain and creating new objects, and are the most hopeful generation to vitalize China.

These arguments reveal the thought style and feature of college student from different sides; however, they also have quite strong one-sidedness. "Pessimism Theory" negates the nature and mainstream of young people, making people's view of the important become overshadowed by the trivial and making people lose confidence; the "Optimists" ignore the facts in front of their eyes and are blindly optimistic, making us relax on the weak points of young people which is not beneficial to cultivating talents; "Skepticism Theory" is really a kind of irresponsible remark which is not worth paying attention to.

Marxism holds that the existence of society is determined by social consciousness and that college students must be placed under a specific social, historical condition to analyze in order to understand them. The strong and weak points of college students must be fully analyzed using unity of opposites viewpoint and college students must be examined using the developing viewpoint then can this portion of forces which are rich in vitality and full of vigor be seen and can the starting and standing points be found.

### I. Strong Sense of the Times

"The nature of human being is not just an innate abstract object of an individual; in its actuality, it is the sum of every social relationship." The political thoughts and moral viewpoints of college students are formed and developed in the relationships of economy, politics, thought culture, etc. and under the influence of school, family and society, and unavoidably it bears the marks of times.

Contemporary college students have gone through the ten-year

turmoil and the specific historical environment of bringing order out of chaos since the crackdown of the "Gang of Four". The entire country has gone from disorder to order, economic system has been reformed, full-scale consolidation of party organization has been opened up and the entire society is in a change of steady progress. The changes of new replacing old have made thoughts of college students sharper and more active. "Open policy for foreign affairs, flexibility for domestic affairs" has broadened the field of vision of college students, widened their knowledge and given them the opportunity to obtain more extensive scientific and technological information than past college students. The new technology revolution have aroused college student's sense of urgency to realize the Four-Modernization and the patriotic fervor to catch up. It can be said that the flourishing changes of political and economical situations of society have formed the objective conditions for contemporary college students to be advanced in thought and made the thoughts of college students tightly connected with the pulse of the times. This sense of the times is the mainstream and nature of college students.

Though young people of this generation each having different experience, their thoughts are active and they are eager to make progress, good at thinking and willing to reform. They have ideals, ambitions and are not afraid to criticize the dark sides of society without any scruple; they are bold to pursue truth, not indiscretely believe in previous generations, not conservative and are enthusiastic about work, about learning and are willing to study assiduously; they have national pride, are concerned about the future of the motherland and have the will to vitalize China; they are especially inclined toward reform and change, have motivating, upward-moving spirit, and are anxious to open up an ideal and beautiful way of life. In conclusion, this generation of young people is no longer the screws of the fifties, but the radioactive atoms of the eighties.

On the other hand, the majority of them did not take part in the "Cultural Revolution", but the consequences caused by ten years of

internal turmoil, the serious distortion and reversal of right and wrong, honor and shame, good and evil, beauty and ugliness, etc., all these have had influences that are not to be underestimated, through vague memories of childhood lives, through overhearing talks between their parents and friends and relatives, through the media of newspaper, magazine and arts, on the formation of their outlooks on the world and life. Since they do not understand the old society, have no comparison between the new and old societies, lack thought preparation for prolonged struggles and are not impressed by the achievements of the motherland, even improperly belittle themselves. They have a shallow foundation in Marxism with little social experience and lack fundamental understanding and analysis about society; they hate the erroneous "leftist" thoughts and their serious consequences, and they hate the unhealthy tendency but can do nothing about it thereby becoming dejected and perplexed. As foreign contacts proliferate, the bourgeois political, academic viewpoints as well as corrupt thoughts and life style take advantage of the weak points and break through, and the struggles between corrosion and anti-corrosion which exist objectively are also reflected in college students' thoughts. Some people worship themselves, lacking long-range goals and impetus of life and lacking devotion to their work and sense of social responsibility; other people engender national nihilism and inferiority complex; still other people even doubt the correctness of Marxism and superiority of socialist system, reflecting the complexity of thoughts of contemporary college students.

## II. Flourishing Youthful Vigor

People's thoughts are the reflection of the existence of society and are also the products of brain. College students are a growing young generation, the formation and development of their thoughts and moral characters not only depend upon social material life conditions and social relationships but also rely upon the development of material mechanisms of their thinking activities. The body and mind of college student enter the flourishing developing period during college stage. The brain and nerve systems develop rapidly with abstract thinking and

logic thinking capabilities being greatly upgraded, making them capable of receiving new things fast. The psychological development of college student enters the weaning period and self-consciousness is formed and developing. Young people begin to turn their visions that are primarily aimed at the outside toward the inside, toward self-observation and self-analysis. They love to think independently, like to argue and probe and also ask why when running into new things. They have abundant imagination and pay attention to study the regular connection of the inside of things and probe people's inner world. They have stronger pride and confidence. They strongly demand that society and adults treat them as official members of the society and respect their opinions. They like to display their capabilities and hope to become achievers in the road of life.

The self-evaluation capabilities of contemporary college students grow more mature by the day, they need the assistance of other people's criticisms when evaluating themselves, but they do not necessarily rely completely on other people's evaluations. Rather, they conduct independent self-evaluation according to their own standards of understanding things. They often become self-polarized; when the self in the position of an observer appears and when the self in reality lags behind the self in ideal, contradictions of independence and dependency, closedness and openness, and ideal and reality will appear. They long to be independent, but they lack sufficient experience when confronting specific problems and again can not break away from the dependency upon adults; and out of pride, they frequently close the windows of their souls and purposefully conceal their personal true feelings, build their own mental blocks while strongly needing understanding in their spirits by the society and other people so that they can pour everything out and gain psychological consolation. Sometimes they deliberately evade problems and do not say what they think when expressing political viewpoints because they are afraid of being criticized and getting their prides hurt. They love to hallucinate and often paint the most beautiful picture for themselves while becoming disappointed once faced with reality. These three pairs of contradictions exert very big

shocks on college students which bring unease and pain. As time goes on, the self-consciousness is inclined to be in a weak and lifeless condition and lose the confidence to change self-position in reality, or adopt the method of shirking objective causes and forgiving themselves thereby relieving the contradictions of self-consciousness and sinking into blindness in action.

Being young people, the emotional experiences of college students come sudden and strong, thus putting them in a "violent storm" type of agitated state most of the time. They are fervent and unrestrained and are full of pride and enthusiasm which may become great motive power for making astonishing achievements. At the same time, however, they are inclined to get excited, can not keep cool and are easy to slide from one extreme to another extreme. Serious consequences are resulted because of being unable to control feelings; irrational behaviors are resulted or dropping from being full of confidence to being disheartened when their wishes can not be realized or when they suffer setbacks.

They are quick-witted with active thinking and strong desire to learn as well as being rich in creative and innovative spirits. They like to find answers for themselves when they are not satisfied with the given conclusions while observing matters. They cautiously think over other people's opinions with a critical and fault-finding attitude. Their thoughts have considerable depth and range. When they ponder over problems they let their minds run as boundless as the sea and sky to involve various areas of the society such as economics, culture, law morality, etc., to not only cover domestic aspects and their own trades but also include international aspects. They reflect on problems deeply, and are not satisfied with just knowing the consequences but also wanting to know the causes. They raise blunt questions which reflect the trends of the time and hit right on current corrupt practices. However, due to the lack of experiences in both positive and negative aspects and weaker ability to distinguish right from wrong, their thoughts tend to go to extremes and their methods of thinking are greatly one-sided.

They often see things in terms of absolutes, stubbornly affirm or negate something and like to go to extremes; sometimes the viewpoints they express are totally erroneous and even to the point of being ridiculous.

The college years are a period when the minds and bodies of students develop most rapidly and they are also a peak period for creativity. Their observations are sharp but one-sided, their chains of thought are well developed but not mature, they are full of emotions but hard to control, and their self-consciousness are about to be formed but not stable. They need positive guidance from the political thought workers who conduct refined thought works very much.

### III. Personality Characteristics That Differ in Thousands of Ways

To understand matters requires not only understanding of general characteristics but also the specific and individual characteristics. Since the secondary school educations received by college students are not all identical, family and society influences are different and backgrounds, gender, personalities, and propensities are also different their reactions are all different in the way they approach problems, reflect their feelings and treat matters. During each schooling period, their thoughts will also go through changes and develop from the day of enrollment to graduation thereby forming different thought propensities and thought layers.

When young students first enter college, they possess a strong sense of superiority, pride and curiosity. They are filled with dreams about the life in college and praises from parents, relatives and neighbors as well as admiration from young friends have made them feel complacent. After they start school and see the reality of college, they feel disappointed and disheartened which puts more pressure on them . The abrupt changes in learning contents, learning nature, forms and methods have made the studying of freshmen become passive without experiencing the delight within and lacking the ability to study

independently and to take care of personal matters. However, they are willing to abide by various rules and regulations of school with very strict self-restrain.

The graduating classes are entirely different in that their views of the world have basically been formed. They are very concerned about the society, have a sense of responsibility, are filled with the joy of being about to start working and often think about their own future as to how to have a successful career. Certain individuals regret that they have neglected their study and have not really earned their diplomas. Those that are more active politically have applied for party membership, but they tend to do this at the time very close to graduation. They are more cautious in handling matters and are not willing to discuss too much with the counselling teachers. Their self-awareness of studying and self-study ability have strengthened and they attach importance to the graduation theses and practical training. As graduation approaches, comparison about various conditions are often being secretly conducted among classmates in the hope of finding suitable positions and possible placements. Certain individuals begin to calculate, and even rely on relatives or friends to find social connections in the effort of changing the status quo.

Characteristics reflected are different for different gender. Female students generally have good academic records but poor creativity ability; they are willing to learn, they have good flexibility and stamina with focused and steady concentration and therefore they are often at the top of the class. But due to narrower attention span and poor operating ability as well as weak sense of curiosity, they are always unable to jump out of the scope of books and teachers' teaching when pondering over problems. Moreover, they like to make close friends and frequently get together to pour out their inner feelings, whereas they become closed to the outside with psychological activities and emotions not easily exposed.

As the natural cells of society, family is often the starting

point for college student to understand the society; different attitudes of the parents will have different influences. Families tend to place their children's being accepted by colleges on the basis of "employee", and their children tend to be satisfied with the status quo with relatively low activeness. As to the relations with classmate, the parents require that their children "treat helping people as a joy" and be "enthusiastic and sincere" so that their children get along with classmates. Conversely, then they become "never have any dealing until they get old and die" or "haggle over every ounce" with other people and lack the sense of intimacy with members of society.

In addition, since the daily habit, growth process, temperament and natural disposition of individuals are different and their will qualities vary, the methods of thinking reflected on the same among the students in the same class are also different. The personality characteristics of college students from different families, different years and different stages must be specifically analyzed and mastered in order to provide basis for our searching for rules of political thought undertakings and enhancing the aims.

Our political thought undertaking should possess two-sided functions. One is to assist young people to understand the circumstances, overcome innate insufficiency, cure spiritual wounds and rekindle revolutionary fervor; the other is to cultivate and tap their potential abilities. Hence, we must not only face squarely the fundamental inclination issues existing in college students and not indulge to let them have their own way but must also recognize their nature and mainstream, enthusiastically assist and correctly guide them to allow their burning youthfulness radiate brilliant rays.

BEIJING UNIVERSITY HAS MADE THE "DECISION ON INTENSIFYING THE POLITICAL THOUGHT UNDERTAKINGS FOR STUDENTS"

Liu Wei

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Beijing University has made the "Decision on Intensifying the Political Thought Undertakings for Students" in the Eighth Party Representatives Conference. It requires that correct political direction must be upheld at all times when conducting school undertakings and that the four basic principles must be upheld and the corrosion by capitalism, feudalism and other corrupted thoughts must be opposed and boycotted. While continuing the elimination of erroneous "leftist" thought, the bourgeois liberalization must also be opposed and boycotted to make schools an important base for cultivating senior professional talents with ideal, morality, culture and discipline and to make schools the theoretical thought position for upholding and developing Marxism and the scientific research academic position with Marxism as the guidance.

This "Decision" also requires that to intensify the political thought undertakings for students they must adapt to the new circumstances, missions and subjects in order to reform the way and method of political thought undertakings and combine the continuation of carrying forward the excellent tradition of party's political thought under-

takings with conducting innovation under new historical conditions as well as work hard to achieve the following items:

1. Political thought undertakings must uphold the major issue of convincing education. The thought understanding issue of students must uphold the guideline of mediation.
2. Combine the intensification of political thought education with teaching of major courses.
3. Combine the intensification of political thought education with guiding students to take part in social practice.
4. Combine the intensification of political thought education with strict school management.
5. Combine the intensification of political thought education with concerning and improving the study and living conditions of students.
6. Intensify the scientific research in political thought undertakings.

To build a competent cadre troop for political thought undertaking is the organizational assurance for conducting the school's political thought undertakings well. Beijing University proposes to attach importance to cultivating and training a group of outstanding political thought undertaking experts and party political management experts just like cultivating and training famous professors and scholars. The level of political thought undertaking must be further upgraded and the authority of political thought section must be established. In order to build an army composed of a few full-time cadres as backbone and combining part- and full-time personnel for the political thought undertaking of students, we have decided that the following measures need to be adopted:

1. Perfect the political thought undertaking system for students. Classes should set Class Directors who will be responsible for the political thought undertaking and part of management work of said class. Class Directors are primarily selected from middle and young teachers, and a few outstanding senior class students and graduate students can also be selected for the position. Class Directors for graduate school are set according to class-year or major and they are selected from instructors or teachers with Master's Degrees. A specific teaching work load will be assigned to teachers during their terms as Class, Year Directors. School and each department have separate student work leader group established separately. Departments and Youth League chief branch secretaries and cadres above the positions of minister of school League committee are selected from graduates who have full-time personnel experience.

2. In addition to continuing the selection of a group of comrades among teachers with good political and professional qualities to perform full-time or part-time political thought undertakings, a group of undergraduate and graduate students with both excellent conduct and academic records should also be selected to supplement the ranks of political thought work. Full-time cadres of political thought work having gone through more than two years of performance evaluations are, if they are classified as outstanding, eligible for scholarships for studying toward Ph. D. or Master's Degree as graduate students according to their personal conditions and the needs of their work. They can also study toward degrees while still working on the job or be sent to study at party administration training classes. After the cultivation and further study, they usually are capable of "carrying with both shoulders" doing both administrative work and professional work.

3. Work hard to solve problems such as post, salary, etc. for political work cadres. Evaluate and hire or appoint them at equivalent teaching, research and administrative posts based upon their Marxism theory level, professional knowledge level, political thought work ability and actual contributions as well as specific working nature,

and the school also provide them with necessary economic subsidies. For teachers, graduate students and senior class undergraduate students who perform part-time political thought work, specific remuneration must be given. The performance and achievements during their terms will be used as important bases for awarding promotions. Those who do not obey the assignment by the organization and refuse to perform political thought undertakings for students will not be promoted.

4. Constantly upgrade the quality of personnel of political thought undertakings and, based on specific situations, stipulate cultivation plans such as on-the-job training or being released from work for further study. Establish the major of political thought education to admit graduate students for the cultivation of higher level cadres of political thought undertakings.

## TEACHING AND EDUCATING PEOPLE

### —Part Six of What Was Seen and Heard About Political Thought Undertakings at Qinghua University

Staff Reporters Zhang Gefei, Li Jie  
China Youth Journal, 1986. 1. 16. 1

Professor Chang Huei of the Department of Automation at Qinghua University is a committee member of the academic section who leads seven Ph. D. candidates and fourteen master degree program students. When he conducts interview for admitting graduate students the first question he raises to the student being interviewed has nothing to do with the major of study, but is: "Why do you want to go to graduate school?" He often says: "Master Haideng used to discuss morality of martial art with people who wanted to be his disciples. How could our socialist universities not stress awareness when admitting students? Without the devoted spirit to serve the people, they will not be accepted no matter how high their scores are." There are many professors like Professor Chang who pay attention to the healthy growth of students in thoughts and politics.

Some people feel that political thought work is the business of political thought work cadres and political theory teachers; yet Qinghua University believes that every faculty members of the school has an unshirkable duty in this matter. For many years Qinghua University has used this as the overall thought which makes the development

of political thought undertakings within Qinghua Garden bursting with energy and vigor and is very solid and sound.

In March 1980, the leadership of school convened a staff meeting for all the Class Directors in the school and put forth an appeal to all teachers to perform the political thought undertakings for students well. At the end of 1983, the staff meeting again put forth a proposal to develop the activities of "teaching and educating people, excellent service and being a role model". The school has given much publicity and recognition to typical individuals and groups who have achieved results in the area of teaching and educating people. Since 1984, they have also held special topic seminars in teaching and educating people every year to constantly make scientific and systematic summarization from the theoretical basis for the undertaking of teaching and educating people.

How do we imply thought education in the teaching process and let the place for imparting business knowledge also become a place for thought education at the same time? Numerous teachers at Qinghua are consciously studying and searching in practice. Instructor Comrade Wang Yansheng of the Department of Hydraulics teaches hydrology. Before starting lecture, he purposefully shows video tape of the big flood of Henan Province in 1975 and the documentary of the big flood of Harbin in 1932. The contrast of the new and old societies not only makes students understand the important effects of hydraulic work but also make students more profoundly realize the superiority of socialist system. Directly aiming at the phenomenon of some students not concentrating on studying their majors of study, Instructor Wang often introduces the great achievements in taming waters by the laboring masses in the history of our country and the glorious accomplishments by contemporary hydraulic undertakings, and uses this to motivate the students' spirits to take part in the hydraulic undertakings of the motherland and guides the students to correct the relationship between individual and career. He says rather thoughtfully: "Teaching should first teach people. Conducting some related thought education during regular

classes not only benefits the healthy development in student's thought but can also promote the student's studying of regular courses."

A large group of teachers like Wang Yansheng are all working hard in combining organically regular teaching with thought education.

Example is more important than percept, and meanwhile, strict requirement and strict management is also a kind of thought education. Being accepted by the highest learning institution like Qinghua undoubtedly is an honor. But sometimes an honor can become a burden, causing some students to become complacent. Certain students do not take homeworks seriously, others do not prepare for the experiments. One time, teacher asked students of Department of Radio to prepare for vacuum experiment in advance. One student did not do as asked and after it was discovered the teacher insisted that he go back to make it up, and said earnestly to him: "Missing one preparation is a small matter but we must cultivate a rigorous attitude in doing scholarly research and the spirit of being scrupulous about every detail from these bits of small matters." On Sunday, the teacher relinquished his time to rest and accompanied this student to make up for the experiment, making this student learn a lot. In physical education classes, aiming at the thought of fear of hardship and tiredness existing among students many fifty-odd years old teachers are braving intense heat and bitter cold to crawl and tumble with students together. The spirit, morals and will they have displayed have subtly influenced and affected the students.

The logistic front faculty of Qinghua have also consciously taken part in the rank of teaching and educating people. The students of engineering colleges spend a lot of time in practical training. Many master workers conduct thought education for students using their own action as model in their work. One student thinks practical training is nothing but "simple process simulation", and relying upon one's own brain one can "understand at a glance, learn in a second, complete in one try". He did not pay attention to watch the master worker's demonstration, and when he started to operate by himself he could not handle

it no matter how hard he tried; eventually his hands started shaking, face turned red and started sweating. Just at this time when he felt at a loss what to do the master worker came to him and patiently explained the main points; he assisted by guiding the student's with his own hands and helped him to raise his understanding, making the student very much affected. He wrote in his summary: "I am really 'sold' to the master worker's attitude of teaching with skill and patience and being affable as well as his superior techniques!"

The model action of teaching and educating people taken by the vast faculty of Qinghua University have produced profound influences on the students. Many students say thoughtfully: the teachers are working their hearts out for the undertakings of the party and their lofty quality of diligent work to cultivate our growth will be my model to learn from for life and will always motivate me to struggle hard for the prosperous advances of scientific undertaking and the continuing development of socialist construction! Political thought education is a two-way exchange. In the process of teaching and educating people, the construction of faculty rank itself has also been strengthened.

People often use "engineer of soul of mankind" to praise people's teacher. During the material gathering at Qinghua, we felt deeply that the vast faculty of Qinghua deserves this title.

## COMMENTS ON QUALITY, INTELLIGENCE AND GROUP STRUCTURE OF THE LEADING CADRES AT ADVANCED COLLEGES

Liu ke and Lu Hongjun

Science Management and Study (Hohhot), 1986. 1. 59-63

### Quality and Intelligence of the Leading Group

Before investigating the quality and intelligence of leading cadres at advanced colleges, it is necessary to conduct a rough analysis on the status of leading cadres at advanced colleges of our country.

#### I. The Type and Characteristics of Leading Cadres at Advanced Colleges

##### 1. Developing and Decision-Making Type

This is the cream of the crop of management talents at advanced colleges. Their characteristics are that they are conscientiously in line with the party Central Committee in political matters; that they have great strategic goals; that they have clear minds and liberated thoughts; that they are brave, cultured, resourceful and assertive; that they are good at absorbing valuable, new domestic and foreign things; and that they possess an open train of thought and unique style. They know modern management scientific knowledge and thoroughly understand various linkages of advanced college management. They observe

things keenly and are good at uncovering problems; they not only have stronger abilities in analyzing problems and logic chain of thought and creation. They know their subordinates well enough to assign them jobs commensurate with their abilities and can coordinate and unite cadre teachers with different opinions to open up a new phase for the reform of advanced colleges.

## 2. Learned and Versatile Type

The biggest characteristic of leading cadres of learned and versatile type can be divided into management versatile and general versatile. The so-called management versatile is one who is proficient in one area of advanced college management (either party administration management or teaching management or scientific research management) knowledge and functions, and is also familiar with the management knowledge and functions in various other areas. The so-called general versatile is one who is proficient in a certain discipline knowledge and is also familiar with various other discipline knowledges. Since management itself is a scientific subject, we jointly call them the learned and versatile type.

## 3. Authority and Expert Type

These are professors or experts selected or promoted from a certain discipline or major; they are the authority in their own discipline or major field, but are not necessarily expert in management. A significant portion of authority experts have become leading cadres of schools; they are busy handling the management business they are not good at thereby falling from experts in their trades to become layperson in management. Although management itself is a major discipline, the problem of relearning to become management expert exists among all leading cadres. Yet the weak points of authority and expert type leading cadres in this area are usually more conspicuous.

## II. Quality and Intelligence Structures Leading Cadres of Advanced Colleges Should Possess

## (I) Quality Structure

### 1. To be politically in line with the party Central Committee

This is the basic political quality the party and administration leading cadres of advanced colleges must possess. To be politically in line, first of all, means to be in line with the party lines, guidelines and policies since the Third Session of the Eleventh Central Committee Plenary.

### 2. To possess Strong Dedication to One's Work and Sense of Responsibility

Since our requirements for the quality of cadres have, for a long period, been putting more emphasis on organizational discipline, people have this impression that quality seemingly is organizational discipline and that the two are being made completely equal. To be sure, discipline is an important aspect of quality and the requirements and attainments in this area should be enhanced continuously. But compared with dedication to one's work, it can only be counted as the fundamentally required condition. A leading cadre with high degree of dedication to his work will certainly have strict organizational discipline and conscientiously be in line with the Central Committee politically. A strong dedication to his work is the basic impetus required for a leading cadre to be successful to some extent and is also the psychological quality which resides in an individual's body on a long term basis.

Sense of responsibility is the expression of dedication to one's work; it often displays itself in the leading cadre in the form of being energetic and aggressive and the will to fulfill his duty with all his heart for the people and the party as well as daring to do things that no one else has done before. Being responsible for cultivating senior scientific and technological talents and representing the national levels in science and technology, the leaders of advanced

colleges will not be competent at the job to lead if their leaders do not have the courage to catch up and overtake the first-rated level of the world.

### 3. Innovative spirit which dares to take the initiative

It is discovered in our quantitative studies and qualitative analyses on the function evaluations of our cadres that one's dedication to work is not directly proportional to ones initiative in that leaders with initiative are always full of strong dedication to their work; whereas every leader with dedication does not necessarily possess the innovative spirit. For example, the great issue faced by advanced education is the reform of management system. This reform-does not have existing models and experiences to follow. This requires that the leading cadres possess courage to take risks. Facts have proven that the bigger the goals of reform, the longer the pace and the larger the risk.

### 4. Democratic style,follow frank criticism as naturally as a river follows its course and good at uniting people with different opinions to work together.

Advanced college is a place where a variety of disciplines and talents gather, ranging from renowned old scientists to novel young scholars with a galaxy of talent and active thoughts. As school leader, he must have a democratic style without faulting those who speak out and be good at providing opportunities for airing views and accepting opinions; must be able to tolerate dissidents such that everybody has ease of mind. Only by being good at adopting other people's good qualities to supplement one's own shortcomings and relying upon collective wisdom and power can the work be done well. The leading cadre of advanced colleges must also have higher policy level and be good at putting the educational guidelines of the party into practice from the basis of actualities of their own schools; be a person of integrity with a practical and realistic style, honest mind, and who thinks and

act in one and the same way while not glossing over his own faults and not taking cue from changing conditions. This is the basic quality for high-level leaders to win over the trust of the vast intellectuals.

## (II) Intelligence Structure

1. Master one discipline of professional knowledge and possess a specific scope of knowledge

The political and party leaders of advanced schools must master one discipline of profession (including political undertaking management). This profession should be learned through regular training; yet those that have been attained through long-term practical work and self-study to reach a significant level with practical experiences should also be recognized. For instance, among the cadres of developing and decision-making type, some do not have regular professional training but have had considerable attainments in the management area of advanced school and, in actuality, have reached or even exceeded the level of ordinary college graduates.

Meanwhile, the basic theories of Marxism-Leninism should still be grasped, and the history of Chinese Communist Party, History of Chinese Revolution and Modern Chinese History, etc. should be studied. Know a little about the science of advanced education (such as advanced pedagogy, national pedagogy, etc.); know a little about management sciences of advanced education (such as introduction to school management, management psychology, educational economics and science of law, etc.)

Deputies to political and party leading cadres should be familiar with the functional knowledge within their fields of responsibility to become the experts in that field. For instance, Vice President in charge of teaching should know teaching theory, teaching method, educational psychology and teaching management knowledge, and had been an outstanding teacher; Vice President in charge of scientific research should know professional knowledge such as the history of science and

technology, scientific psychology and scientific and technological management, etc.

## 2. Foresight capability

This is a kind of high-level intelligence factor which requires that the leaders be able to predict correctly in advance and foresee the development and ending of matters. The information society has made advanced colleges where knowledge and talents are concentrated bear the brunt in the construction of the Four-Modernization . As a leading cadre, one should be good at full-scale pondering of problems to grasp the trend of microscopic problems from an overall angle and to analyze complicated situations from a general angle; one should also have keen eyes, sharp mind and is good at deduction and counterevidence, etc. The leaders in the party committee of Communications University start at a higher point with great bravery in the reform of advanced school management that is inseparable from foresight. Their profound analyses on the existing malpractices in the management system of advanced schools and profound understanding of the trend of scientific and technological advances in the international community, they have observed that "without reform, there is no hope for the advanced school undertakings of China"; therefore, they, on numerous issues, see farther and predict accurately.

## 3. Policy-making capability

The so-called policy-making is the best scheme selected from many action schemes which are all aiming at reaching the same goal. Policy-making capability is the display of a set of general capabilities and are primarily composed of these capabilities:

General analytical capability. One must be capable of discovering the nature of problem out of numerous and complicated problems to pin down the key, distinguish priority and measure gains and losses.

Logical judgment capability and instinctive judgment capability. One must have logical thinking capability to be able to judge the cause and consequence relationship of matters; to be able to apply instinctive functions to judge matters, and be able to grab the opportunity to handle things assertively when a certain urgent problem occurs and there is no time for consultations.

Creative capability. Policy-making is not a repetitive, simple work, but a kind of creative mental work. The leaders are required to be sensitive to new matters with an open chain of thought, and are good at putting forth new ideas, new settings and possess very strong creative capability. Basically, the undertakings of advanced schools are not a type of adaptability work, but a type of creative work. It is imaginable that it is impossible for a leader with narrow chain of thought who always sticks to old ways to make lively policies of foresight and sagacity.

#### 4. Management capability

The management capability is the "special skill" stressed by Lenin. The key to the science and technology development of our country lies first of all, in management, technology is secondary. The management goals and educational scientific research goals of advanced schools are an integral entity which interplay between each other. The setting of management goals must be based on educational scientific research goals and accomplishing the educational scientific research goals also requires that management goals be the premise. Therefore, leaders of modern advanced schools are required to possess very strong management capability. Since management work has the management characteristics of nonrepetitiveness and high creativity, management capability is also a comprehensive body of various capabilities. It primarily includes:

Planning capability. The leaders are required to have a systematic method when solving problems. Whether it is school development planning or teaching and scientific research management works, they can all be

guided by strategic planning and long-term planning to ensure that the situations of having nothing to do or seeking for new goal again will not occur after the cadres and teachers of the entire school have reached an intermediate range or short-term goal.

Organizational capability. This is the talent to organically gather the scattered people and material and work hard according to a specific procedure toward an overall goal. A strong and powerful organization is the important assurance through which the leaders of advanced schools win over the trust of the people and are able to mobilize the vast intellectuals and various levels of cadres to wholeheartedly struggle for the goals of school.

Coordination capability. The leading cadres of advanced school must be good at coordinating the interrelationship between various sections and departments. The modernization of management of advanced school has made the school's closed-type organizations become open-type organizations. The violent changes in external and internal conditions have made the school face a daily series of new contradictions. This requires that leaders be able to properly coordinate and mediate. This kind of coordination does not mean to get involved in everything, be it small or big, resulting in interfering with matters within the responsibility ranges of subordinates; rather, it is to clearly define the responsibility of each section as a whole with major authority in grasp and minute items delegated such that command is properly directed and coordination is skillfully handled.

Control capability. This is the talent of being good at gathering and dispersing. Take reform as an example, it requires that the school delegate part of the authority in personnel, finance, teaching and scientific research to the level of department and section. The delegation of authority can be "never to bother once it is delegated", and it can also be "guidance through power sharing". Effective leading should be to guide and assist subordinate to use authority well without or causing less disturbance.

Impellent capability. This is the talent to encourage and motivate faculty to struggle for the organizational goals. A leader is not supposed to be indulged in excessive utilization of power and abuses authority. He should know clearly that authority is really effective only when subordinates and the masses completely accept it. It is especially so at advanced school where knowledge and talents concentrate. Therefore, leaders of school should respect knowledge and talent, understand their psychologocal conditions and spiritual and material needs; they must use means such as feedback, explanation, deduction, conviction, etc. to encourage faculty and arouse the imagery understanding of subordinates toward the goals of school so as to work hard for them.

#### 5. Capability of knowing how to make proper use of personnel

The capability of knowing how to make proper use of personnel is displayed, first of all, in the determination and courage to use people's strong points. Leaders of cool head invariably believe that it is better to use someone who is not liked by the masses but who is really learned and talented and is capable of opening up a new prospect than to use one who works hard, does not complain and is not contentious, yet also does not accomplish anything.

The capability of knowing how to make proper use of personnel is also displayed in the capability of being good at developing subordinates, the capability of observing, identifying and promoting them during the process of practice as well as the capability of being good at cultivating talents during the process of practice.

#### Group Structure of the Leading Group at Advanced Schools

The establishment of the leading group at advanced schools must not only consider the quality and intelligence of individual but must also consider the superior combination of the group.

## 1. Superioritization of group professional structure

The primary marker of the professionalization of leading group at advanced schools should be the experts with the knowledge and capability of school management. Some of this kind of experts are meanwhile also the authority in a certain discipline, while others are experts rich in knowledge and capability of management. Therefore, when promoting intellectuals to enrich the leading group of school the capacity of their management talents should be closely observed.

Usually, there are primary three types professional structures in school's leading group, that is, political work expert, administrative work expert and functional work expert. The main persons responsible for party and political affairs of school should know the authority of overall management, whereas deputies in charge of a certain area can be experts who know how to manage that area. Meanwhile, the professional knowledge of group members must base on actual needs of said school and the rules developed by the science of management itself to absorb talents with different scopes of knowledge in main profession or supplementary professions and form a reasonable proportion structure.

## 2. Superioritization of group intelligence structure

A reasonable intelligence structure should jointly consist of strategist who possesses foresight and sagacity and is good at planning strategies and organizer who possesses high-degree organizational and commanding talents as well as pragmatist who can work steadily and make solid progresses. A strategist has broad visions and is farseeing. He is good at starting from domestic and international actualities, and can effectively organize and lead a variety of investigations and scientific predictions until a policy is made; an organizer is very highly competent in organizing and leading and is good at discovering and promoting activeness and creativity of various talents as well as being able to rely upon the masses to take care of things well; a pragmatist is good at applying various resources such as manpower,

finance, materiel, etc. to adapt to a variety of different needs, i.e., directing and managing of daily operations and logistics.

### 3. Superiorization of group energy-level structure

Talents of different levels must be proportionally combined according to actual situations and specific talent level difference. A group should not be composed of people with entirely identical talent level. Facts have proven that talent repulsion is easily generated when too many people with the same talent level gather, causing forces to cancel each other out. Whereas slight difference in talent level tends to create attraction force and complementary needs are easily formed.

### 4. Superiorization of group nature structure

According to related principles in psychology, we can classify the nature of leading cadres into five types: Extroverted-type. This type of person is cheerful and enthusiastic, full of energy and good at adapting to new environment, but with poorer self-control; Introverted-type. They are quiet and staid with exquisite emotion and discreet manner who are good at self-control and adopting other people's opinions, but with poorer adaptability; Emotional-type. They have strong self-esteem while their behaviors are easily affected by their moods, being emotionally high when things are smooth yet becoming depressed when things do not go well; Rational-type. They consider things carefully and are solemn and serious and good at controlling their own conducts and words, but lacking enthusiasm while getting along with people; Independent-type. They have firm wills and are not easily interfered by external factors who are assertive and have strong reception ability while being overconfident and not easily accepting other people's opinions.

The leading group can not be composed of only people with identical dispositions. Imagine, if they are all of independent-type, then it will be very difficult to unite them; for group of all intellectual-

type, it will be very difficult to bring organizational energy into play; for group of all emotional-type, there might be frequent arguments and the group will disband when encountering setbacks; for group of all introverted- or extroverted-type, it is not an effective group either. Therefore, factors purely in the areas of temperament and disposition of cadres should also be given specific considerations.

##### 5. Superiorization of group age structure

To promote younger generations into the leadership is an objective requirement and common trend of modern societies, and a historical mistake will be committed if it is ignored. But promoting younger generations must not be simply interpreted as promoting young people. Promoting younger generations into the leadership is also a "vague mathematical" concept; it means that there should be a reasonable ratio of old-, middle-, and young-aged people in a leading group and that there is an average age limit which corresponds to the management level. There must not only be prevention of leadership aging but must also be guarantee of the inheritability of leadership. Each person can bring his best effectiveness into play according to his own psychological features and intellectual level. Generally speaking, the best average age of leading cadres at advanced schools is around forty-five years old.

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TO AROUSE THE "INTERNAL STRESS" OF CADETS DURING IDEAL EDUCATION

Political Ministry of the Second Military Doctor University  
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The twenty graduating students of class 80 of our school went to the frontlines in Laoshan for internship for four months last year. They had gone through the test of blood and fire with six among them distinguishing themselves in actions, nine among them receiving awards and all nine Communist Youth League members joining the party. From the performance of these twenty students in the frontlines coupled with the fact that 100% of the graduating students of the past three classes at our school obey the assignments, we feel that, looking back on the political thought works of the past few years, the core issue of student's political thought work is to grasp the education of communism ideals and guide the student to have correct prospects on the world and life.

Ideal education is an important component portion of our party and our military services, and a whole set of effective methods accumulated through long-term practice must be carried on and made the most of them; meanwhile, under the new circumstances, young people's thought, behavior and psychological features must be combined to search for new methods. The thoughts of contemporary college students are active, and they like to think independently. But since they grow up in a time of

turmoil with shallow theoretical basis, they lack differentiating capability in the complex social phenomena and foster "resistance" toward political education. Faced with these new situations, we believe the important thing in conducting ideal education is to arouse and motivate the "internal stress" of cadets, and allow them to freely analyze and compare in self-education so as to understand the true meaning of life and establish a far-reaching ideal through strong contrast. The faith established this way will be firmer and sounder, resulting in "internal stress" which not only urges oneself on but also promotes others.

A few years ago the so-called "faith crisis" appeared in the society and, without exceptions, some of our students had also been affected by the theory of Marxism-Leninism being "outdated". At that time, we believed that Marxism-Leninism and the Thoughts of Mao Zedong, as truth which is universally applicable, did not have the "outdatedness" problem. Yet Marxism-Leninism must also constantly develop with social practice. The reason some of the students were affected by the "theory of outdatedness" was due to ignorance about Marxism-Leninism. Although they had learned a little basic knowledge of Marxism-Leninism during secondary school years, it is still rather abstract. To ascertain a scientific prospect of the world and methodology, they should be completed during college years. Our ideal discipline education is to guide students to establish their far-reaching ideals on the basis of communism's certainty for them to use for their entire lives. Based on this, recognition, we have always insisted upon conducting basic theoretical education for students in our practice and meanwhile we also concentrate on student's reception capability and psychological features to teach them according to their talents so as to better handle three relationships: relationship between reforming theoretical education and upholding positive education; relationship between resolving realistic thought issues and explaining basic principles; relationship between teacher's teaching and guiding student to conduct self-study. Practice has proven that the basic theoretical education in Marxism-Leninism has important effects on establishing student's far-reaching ideals. Student He Yonggang, who went to Laoshan for internship, joined the party

at the frontlines, and he had also been perplexed in terms of faith. At first he studied a few Marxism-Leninism original works out of curiosity and craving for knowledge, and the more he studied the firmer his belief in communism became. It is exactly under the guidance of Marxism-Leninism that he has made up his mind to "struggle for life for one's belief", and has made his recognition gain sublimation and his belief firmer through the test of blood and fire. The growing processes of many cadets have shown us that letting them master the basic theories of Marxism-Leninism through the ideal education in Marxism-Leninism will make them not at lost in the face of any complex environment and various tests. This is the basic approach and method for upholding ideal discipline education, which can not be let loose at any time under any circumstances.

In order to make student firmly establish the far-reaching ideal of communism, we must also conduct positive education while arousing student's "internal stress", and pay considerable attention to effects of role model. There was a time in the society when the ideas of "no need to publicize the spirit of Lei Feng" and "old yellow cow's spirit is no longer popular" were rife. We, however, have given wide publicity to the life and story of Lu Shicai and have formed a system that whenever new cadets start school we give everyone copies of Comrade Lu Shicai's model life and story, organize them to watch video tapes of "model military doctor" Lu Shicai and make the life and story of Lu Shicai imprinted in everybody's mind. "To become a useful person is to become a people's military doctor like Lu Shicai" has inundated the cadets' notebooks, thought briefings and application form for joining the party indicating their determinations to treat Comrade Lu Shicai as a role model and strive to become qualified military doctors. The fact that twenty interns taking their tests in the battlefield of blood and fire has reflected, from one aspect, the results of our publicizing the life and story of Lu Shicai. While using this role model of Lu Shicai to conduct ideal education for the cadets, we also aim at the state of mind of young people revering contemporary heroes and role models of their same age, and organize everybody to learn from the life and story

of Zhang Hua, invite heroes of the defensive war against Vietnam to give reports and let people of the same age and with ideals to explain them to everybody. Over the past few years we have also publicized the lives and stories of Cadets Qian Baohua who alway thought about collective interests and Lo Xinghua who enjoyed helping other people, etc. In the meanwhile, we also pay attention to use negative examples such as those who started off from being in love and wound up committing crimes which led to sentences and those who had been sentenced to one-year of reeducation through labor for disorderly conducts in the streets and stores to conduct education for the students. Through analyzing the processes of their laxing in thought reform and giving up the far-reaching ideals to cause mistakes or even committing crimes, the students are being educated from the strong contrast between truthfulness and falsity, goodness and evil and beauty and ugliness thereby strengthening their capabilities to resist the corrosion of bourgeois thoughts. Young students are interested in and trust "lifelike" advanced role models, and the feats of contemporary heroes have more "shocking and urging" effects on them. They comprehend the "great truth" from the process of individual chain of thought to general one and from concrete chain of thought to abstract one, and make it undoubtedly logical to transform the shock into pursuit of ideals.

(This article is part of the conclusions of the Political Ministry of the Second Military Doctor University on student political thought work.)

REFORM THE CORRUPT PRACTICES OF "ADVANCED SCHOOL OPERATES LIKE A SOCIETY", AND GRADUALLY REALIZE THE SOCIALIZATION OF LOGISTICAL SERVICES OF ADVANCED SCHOOLS

Zhang Ziyuan

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The Central Committee of the Chinese Communist Party has pointed out in the decision on educational system reform that: "the reform of logistical services work of advanced schools is extremely important for assuring the smooth implementation of education reform. The direction of reform is to realize socialization." The decision by the Central Committee has clearly indicated the important relation between logistical reform and education reform on the one hand; and on the other hand, it also points out a clear reform direction for logistical services work. In recent years, advanced schools have done a lot of work in investigating how logistical services work can better adapt to the teaching and scientific research work in reform and how they can better serve the lives of faculty and students, and have obtained gratifying achievements. But due to deeper influences by the old management models along with the fact that the third enterprises of our country is backward and the level of social services is lower, to realize the reform of socialization for the logistical services of advanced schools is a heavy burden and long road. We must start from the history and reality of our country's advanced school logistics, and rely upon and bring the

activeness of both the society and advanced school into play to gradually reach it through unremitting hard work.

### I. Corrupt Practices of the Old Logistical Work Model of Advanced Schools

For a long time the model of advanced school logistical work has been a rigid, closed and self-sufficient model, just like the entire system of advanced schools. This model not only includes systems borrowed from foreign countries but also has vestiges of the rationing system of war time, which is a natural economic thought reflected in the management of advanced school due to underdeveloped commercial goods production. To make advanced school into a little society with all the "vital organs" is the symbol of this rigid, backward model. The food, clothes, housing, transportation, being born, getting old, getting sick and death of several thousand faculty and students in an advanced school along with over ten-thousand dependents are all being handled and managed by the school, causing the organization to get more and more overstaffed and the cost of cultivating students to get higher and higher. This model of operating school like a society has piles of problems and mountains of opinions with poor economic and social effects. On the one hand, the school must maintain a huge establishment of logistical services team and currently the establishment ratio of logistical services personnel and students at advanced school is generally about 1:15 with logistical personnel taking up about one-fifth of the entire faculty; on the other hand, the administrative management method for enterprise is used to manage them, causing the phenomena of "big rice pot" and "iron rice bowl" with low efficiency and great depletion. Presently, among advanced schools the expenses for logistical work generally take up about one-tenth of the total educational undertaking fundings. Moreover, there is also the phenomenon of "big rice pot" inside logistical department which displays itself as equalitarianism between human relations and lacks competition like a "pool of dead water". This corrupt practices have caused the logistical work of advanced school to enter a "dead end". For many years this "old, big and difficult" burden of logistics at

advanced school has set heavily on the shoulders of school leaders, which has held back teaching and scientific research and become a serious obstacle hindering the progress of advanced school.

## II. Status and Problems of the Reform of Logistical Services Work at Advanced School

The logistics of advanced school must charge out of the "dead end", but where is the way out? The way out lies in reform. First of all, we start from the reform work of the mess hall in advanced school to change the traditional simple administrative management method and implement the method of combining economy and administration with being responsible for management fee, quota management and rewards for exceeding quota, and change the "boarding system" which has been implemented for a long time. Later, we also implemented in succession the single item economic contract responsibility system for departments such as vehicle transportation, repair engineering, etc. After the Third Session of the Twelfth Party Central Committee Plenary, the reform of logistics at advanced schools has universally implemented the economic responsibility system using contract as the central feature. Among the advanced schools in Shanghai there are currently four types of primary forms of reform: the first one is the logistical funds quota contract responsibility system (i.e. the mass contract) with Tongji University as a representative; the second one is the change of daily logistics department to service company using the method of collective enterprise management with Communications University of Shanghai as a representative; the third one is the small collective style operation of school logistics with the student union service association of Huadong Teachers Training University as a representative; the fourth one is the mess hall operated by introducing the social collective enterprise. Among the above-described four types of reform the logistical funding quota contract responsibility system of Tongji University is presently the most successful one. It starts from the "dead" status quo of logistical work at advanced school to grab, first of all, and break the two "big rice pot", delegate authority and be flexible; meanwhile, it is based on the principle of serving the faculty and students,

making the logistical work conform to the school's centralized arrangement while the controlling authority and commanding authority still remain in the hands of school. Practice has proven that the economic and social effects of this reform are very good. Prior to 1984, the logistics department of the said school needed expense funding of 860 thousand-odd yuans every year. Beginning in 1984 the logistics department took out a contract for 710 thousand-odd yuans from the school and, through creating income and cutting expense, had not only handled the logistics well and realized the contract index but also turned in 400 thousand yuans to the school. The educational undertaking had developed in 1985 and the school would have appropriated fundings for one million and three hundred thousand yuans, but the logistics department took out a contract for an annual funding of 800 thousand yuans. After executing the contract for just over half a year it had already made 710 thousand yuans, and it was estimated that in addition to fulfilling the contract several hundred thousand yuans of created income could be turned in to the school by the end of the year. This is to say that logistics has basically accomplished self-sufficiency and that it has set the foundation for making logistics a relatively independent economic entity and for realizing socialization of logistical work.

There are three marked characteristics when analyzing the above-described four forms of reform: the first one is that it has developed from the past single-item reform to the full-scaled, comprehensive reform of the entire logistics department; the second one is that it has transformed from management reform to system reform; the third one is that it has gradually developed from reform of daily logistics to reform of technical logistics. These characteristics symbolize that the reform of logistics at advanced school has entered a new developing stage. Looking from an overall angle, the logistical service work has still not fundamentally turned the passive status, which does not meet the situation needs of educational system reform and there are schools in the existing management system which still take full responsibility of logistics, resulting in excessively heavy burden, rigid discipline and logistics department lacking sufficient authority of self-

determination as well as the impetus and energy it should have. In reforms already underway there are still situations of inconsistency between the scheme of reform and effects of practice, and tendency of emphasizing economy while making light of services and emphasizing quantity while making light of quality, and "overemphasizing making a buck". All these problems must be resolved during reform, and only through constant reform can they be resolved.

### III. Bring the Two Activenesses of Society and Advanced School into Play and Gradually Realize the Socialization of Advanced School's Work

The logistical services work of advanced school is the guarantee, foundation and forerunner of school's teaching and science . It relates to the speed and scale of the development of educational undertaking, the carrying through of party's educational guidelines, the putting into effect of policy toward intellectuals, the growth of young students and the grave matter concerning the security and unity of school. Therefore, it is a grave matter that both the society and school should pay much attention to. "The party and political leading organizations where the advanced school is located must take up the responsibility of solving this problem well". We must actively brain storm to create conditions for the logistics of advanced school to realize socialization and to support the reform of various service items of advanced school's logistics. How does the logistics of advanced school realize socialization? There are not only theoretical issues but also practice issues; they not only involve national conditions but also involve the existing guideline policies. So, the socialization reform of logistics of advanced school must not only rely upon the "external" conditions created by society but also must rely upon the "internal" conditions created by school itself. The portions among the logistical service work which can be picked up by the society should be, through system reform, gradually transferred to be the primary responsibilities of various businesses and various departments, and socialized production methods should be used to organize production and services as production develops; meanwhile, part of the logistical

service works at school are to gradually develop into relatively independent economic entities, and they, under the premise of satisfying teaching, scientific research and the daily needs of faculty and students, are gradually opened to the society and to serve the society. When the conditions are right, the dual leadership of combined professional production entity of logistical services of advanced school and school can be allowed in the society.

Based on national conditions of our country and the status of advanced school, the realization of socialization of logistical service work is a progressive process. Presently, the society has already established part of the facilities in the school and taken up part of the logistical service work. The reform types such as introduction, open and contract, etc. conducted by the logistical department of each school also possess certain socialization factors. Therefore, for the realization of socialization of logistical service work, it not only can not be simply understood as dumping the logistical service work of school to the society presently but also can not be interpreted as passively waiting for the coming of socialization. The reform must be actively and steadily conducted.

(I) The logistical department of advanced school must, through reform of itself, gradually expand its self-determination authority to develop into an economic entity which is independently accountable and can operate independently under the guidance of school. It should become a team among the same type of business in the society that exclusively serves advanced school. The reform of advanced school's logistical department itself toward socialization can be generally divided into the following steps:

The first step is to implement various forms of economic contract responsibility system based on the characteristics of logistical department of advanced school and to constantly perfect it. The first type is with relatively similar units of production or enterprising departments in the society, such as major, intermediate repair of houses and small-

scaled infrastructure construction, motor pool, guest quarters, etc.; and independent accountability, being solely responsible for profits or losses, combination of responsibility, authority and benefit, fixed amount calculations and making more by working harder can be implemented. Taking out contracts on specific outside duties to create and keep income is allowed; part of the duties contracted from school is also allowed to be sublet to related departments in the society. The second type is service department such as mess hall, nursery, utility management department, etc., and they can adopt methods such as management foundation contract, expense contract, duties divided up and assigned a part to individual or group. The third type is the administration management department such as management and distribution of housing and furniture, and official work, etc. These primarily rely upon the strengthening of administrative leaders, establishing various sound rules and systems, implementing scientific management and position responsibility system. In addition, some of the service work such as afforestation of the environment, sanitation, garbage hauling, etc. can all be contracted out to related departments in the society.

The second step is that, on the basis of widespread implementation of single-item contract, new forms in management system can be adopted to implement full-scale economic contracting of logistical departments, and implement general contracting and individual accountability to gradually separate the functional department of school's logistical work from production service departments. One type is that the general affairs section implements funds contracting and duty contracting for the entire department and that the department has more decision making authority on personnel and finance. Through creating income and conserving expenses, self-sufficiency is gradually achieved. Another type is to organize service company owned by all the people and collectively owned, combine all production and service type duties of the general affairs section, and implement enterprising management to link up with school using the contractual form. Service company are allowed greater independency, but must complete the duty according to the requirements

of school.

The third step is that the internal reform must develop toward depth and breadth to realize scientific management under the situation where the logistical department of school has become an economic entity which is capable of providing services for school. When it develops to a specific time, it will become part of a professional joint body of advanced school's logistical service in the society.

(II) The socialization of logistical service work of advanced school must obtain the support of various social sectors. The various levels of educational administrative and management departments must strengthen and improve the macroscopic guidance and management of the reform of advanced school's logistical service work. We must join forces with various levels of government to lay down policies and methods related to the reform of logistical service work of advanced school, support and push for the socialization reform experiment of advanced school's logistical work. The central committee and local governments as well as associated departments and the educational administrative department of each province and city must strengthen the guidance toward the reform of advanced school's logistical service work. As a policy, the logistics reform of advanced school must be supported in areas such as manpower, finance, materiel, etc. to solve problems for logistical department of advanced school. For example, the infrastructure construction and land acquisition of school should be given priority handling; materiel such as water, electricity, coal, natural gas and major and supplemental food items, etc. must be given proper favored supply; local tax revenue department should give tax reduction and waiver to various companies and income-creating units inside the school which are committed to services; local government should support and make things convenient for the contracting units to open accounts at the banks and introduce the third enterprise as well as labor forces from villages; in the construction of city, work shares or increase of extra responsibilities for school should be decreased as much as possible; when conducting local price adjustment, students at advanced

school should be given corresponding living expense subsidies.

The reform of logistical service work of advanced school is a work which involves wide scopes with very strong nature in policy and requires the support of various sectors of the society. It is believed that as long as various levels of government and leaders of school stress bold reform and courageous practices, a logistical management system for advanced school that meets with the national conditions of our country and adapts to the development of Chinese style socialist advanced educational undertakings can certainly be created.

HUMBLE OPINIONS ON TRIAL IMPLEMENTATION OF RECOMMENDING STUDENTS FOR ADMISSION INTO ADVANCED SCHOOL

Zheng Hongmo

Beijing Medical University

Medical Science Education (Beijing), 1986. 2. 1-3

Since the restoration of <sup>an</sup> advanced examination system in 1977, the admission work of advanced schools in our country has obtained significant achievement and its credibility has always been very high. However, there were different interpretation and different opinions since the very beginning and there were some practical difficulties as to how to specifically carry through the principle of "all-around evaluation of morality, intelligence and health, and admit superior ones". Therefore, the actual total scores of advanced examinations have become the determining factor of whether or not to admit, and this is also what people often call "one test determines your whole life". Indeed, many corrupt practices will be brought about because of this. As time passes by, especially as the pace of educational reform accelerates, more problems in this area are being exposed. In the past few years the former educational department in charge had noticed these problems and had adopted some reform measures in the admission into advanced school year after year to show excellent effects. But from a fundamental viewpoint, especially from the carrying through of the spirit of "decison on Educational System Reform by the Central Committee of Chinese Communist

Party", the pace of reforming advanced school's admission system still must be quickened.

Comrade Wan Li's speech in the national educational work convention especially stressed that "the fundamental purpose of educational system reform is to upgrade national quality, to produce more talents and to produce good talents". And the talents needed in the new era "should be those with ideals, morality, culture and discipline; those who enthusiastically love the socialist motherland and socialist undertakings; those with sacrificing spirit to struggle for the strength of the country and wealth of the people; and they should constantly pursue science, and possess scientific spirit of being practical and realistic and being bold to create". In order to cultivate and train this kind of talent, it is very necessary to allow a certain key universities to coordinate with key high school and adopt the method of recommendation for selecting a group of excellent students to be admitted into university for elaborate cultivation.

According to related provisions sent out by the former Ministry of Education, our university is to conduct trial acceptance of students recommended for admission in Beijing this year. Through consultation with the city Education Bureau, a decision had been made to recommend students from five key schools for admission. Contact with high schools started in the latter part of April to determine the majors of students recommended for admission and their quotas. In mid-May responsible comrades from related departments organized by the Dean's Office of our university were sent to high schools to understand the status of those students who signed up for evaluations and meet with students recommended in the latter part of May. In addition to understanding the wishes of students themselves and the opinions of their parents, interviews were also conducted which included reading and translating an English story (vocabularies can be asked), five multiple choices aptitude tests and one problem of deduction, and the results of interview were used as reference for selection. Ten students were finally selected for admission without test after thorough understanding of student's

regular grades, listening to the introductions by class directors and part of the teachers who had taught them, special consideration for their grades of graduation examinations, referencing to the results of interviews and consultations with persons in charge at the high schools. In the early part of June, after evaluations by the school's comrades in charge and submission to the city admission committee for approval notices of admission with test waived were formally sent out, and the files of students were brought back to complete the entire admission-recommended-without-test trial operation. Since our school fully followed the time and procedures stipulated in the notice from the former Ministry of Education, comrades in charge from associated areas were directly involved, time frame was tightly controlled and the interviews were earnestly and carefully conducted, and the whole operation was well received by comrades in the high schools. Among the ten students selected, seven scored above 600 in the graduation examination (generally everyone participated in the simulated advanced medical examination), two scored 577 and 583 respectively, and the last one scored excellently in every subject. As we understand it, three of the ten students scored among the top five in the graduation examination, nine out of the ten students were city level "three-excellence" students in junior high school or high school, and one was an outstanding cadre.

Now I would like to present some humble opinions on the work of selecting students for admission without test.

#### I. The Important Significance of Selecting Students for Admission Without Test Must Be Thoroughly Understood and Correctly Publicized

Since the liberation, the advanced education of our country in general has been developing vigorously, and has cultivated several millions of various talents for the construction undertakings of socialism. Its achievements have been vast, but when inspected from aspects such as educational thought and teaching method, etc., there are still numerous serious problems and especially in the selection and cultivation of top-notch talents the problems are even more conspicuous. Due to the

difference in people's natural gift, interest, personality and environmental conditions as well as the degree of individual hard work, etc. the development of intelligence of everyone is different; its general rule is: people who are highly intelligent and who are severely retarded are the minority and people with medium intelligence take up the vast majority. How to select students who are highly intelligent to enter college for education according to their aptitude and meticulous cultivation is the problem that is to be solved by adopting the method of admission without test. Because this type of students generally have good grades and they can be admitted into college by taking the admission examination; but there are a group of students who are either good at a certain single course subject or did not perform normally in the examination and did not bring their own capabilities into play will all lose the opportunity for advanced studies. High schools can have longer time to understand students by adopting recommended admission and have larger authority to speak out. Meanwhile, what kind of students are to be recommended so that they can be role models of school is also the important embodiment of the guidelines for operating school. For universities, in addition to cultivating talents according to plan for the construction of Four-Modernization some top-notch talents should be even further cultivated. Through recommended admission, talents can be discovered. It is possible to cultivate a group of top-notch talents faster through this approach of stressing key cultivation during college years and giving continuing guidance after graduation. This is also an important aspect in the current education reform of our country. As a selected test point, the recommended admission work is to be first conducted in part of the key universities and key high schools, and it is very necessary to gradually spread out after experiences are obtained .

## II. Subjects to Be Recommended for Admission Must Be Correctly Selected

The conditions of students recommended for admission stipulated in documents of the former Ministry of Education are: consistent excellence in morality, intelligence and health, or better morality and

health, intelligence above average with outstanding grades and stronger creativity. This is undoubtedly correct. But how to specifically work out so as to abide by in practice is a problem worth studying.

The wish of the student is of significant importance when recommending the student for admission without tests. This is the motivating force to learn the major well and it is also the starting point for cultivating top-notch talents. But the current high school students have rather shallow understanding in the meaning of majors and the country's demand for various majors, even to the point of onesidedness. This requires correct publicity. High school and colleges all have the obligation to explain the recommended majors and give guidance, but forcing them upon students or misleading students to sign up for majors they are not interested in is absolutely not allowed. Therefore, which majors are to be proposed to accept recommended students must be carefully considered. Generally speaking, except for majors such as teacher training, agriculture, forestry, irrigation, geology, fishery, etc. which need to admit recommended students, it is better that other so-called "in-demand" majors or "not-in-demand" majors not admit recommended students. Otherwise, students with good grades will all sign up for those "in-demand" majors, and those "not-in-demand" majors either wind up with no one signing up for or only students of medium level signing up for thereby not being able to reach the conditions recommended students should possess.

Since the number of majors are too numerous, and even if educational departments consult with schools to require that a fixed number of advanced schools admit recommended students from a certain high school, as far as school is concerned it still faces the dilemma of recommended students fewer than the number of majors. Therefore, advanced schools should reduce the number of majors into which recommended students from a certain high school are admitted. However, it is also inappropriate to allow students to freely sign up without specifying majors, for this essentially disregards the wishes of students.

For key high schools, since several high schools request to recommend students for admission without test on over a dozen majors, there should be analysis on the grades of students rather than simply review the student's standing in their classes. Generally speaking, those closer to the top of the roster are naturally better. However, if some students are exceptionally outstanding in morality and health, or score exceptionally well in a certain course subject, they should also be considered even if their rankings in total grades are not as close to the top. We believe, other than special situations, it is better that the ranking of recommended student not lower than the top 20% of the entire class year, otherwise it is very difficult to have the effects of setting examples.

It can be seen from practice that recommending and admitting superior students with consistent morality, intelligence and health for admission without test are generally more smoothly and easily done. But to really select students with outstanding intelligence and strong creativity and whose grades are exceptionally excellent in a certain course subject is quite difficult. The main reason is that the evaluation method adopted by school is unable to measure the intelligence, capabilities and creativity of students, and the on-the-spot discussion or interview can only be used as references, instead of the primary basis for selection. Yet one of the extremely important aspects of adopting the system of recommending students for admission is exactly to select this kind of talent to go to colleges. From now on, the development and cultivation of intelligence should be gradually stressed since secondary school, and corresponding measures should be adopted to evaluate students' capabilities so that they can be reflected in their grades. Where situations permitting, advanced schools should interview the recommended students.

Based on the characteristics of majors, those students with grades that are only above average level but with exceptionally outstanding morality and health should also be considered. As to how evaluation standards are set, they must be specifically analyzed and compared, and

attention must be paid to the opinions of leaders of high schools.

### III. The Work of Selecting Students for Admission Without Test Must Be Conducted in an Organized and Lead Way

In order to avoid interfering with school work and affecting the student's regular learning and graduation examination, the present recommendation and selection work of students for admission without test must be conducted in an organized and lead manner.

First of all, the selection work must be strictly limited within the advanced schools and high schools designated by the responsible departments of the Central Committee, province, city and autonomous region. In March or April every year a meeting with the above schools will be jointly convened by the Bureau of Advanced Education and the Bureau of Education during which advanced schools propose the majors and quota for admitting recommended stud s, and high schools introduce the status and preliminary wishes of their outstanding students. The number of recommended students to be admitted into which advanced school for what major are determined through consultations. Then, the advanced schools can go to high school to conduct propaganda and counselling. In early May the high school begins reviewing students who have signed up and recommends at least two students for each quota in each major for the advanced shcool to select from. In mid-May, advanced school will send representative in charge to high school to understand the status of recommended students, opinions of the class directors and part of the teachers who have taught them, and opinions of their parents and principal. The representative will meet with the recommended students and conduct appropriate oral tests or discussions on these bases. Those recommended students who are tentatively accepted are again reviewed by the leaders of advanced schools and then their names are submitted to the provincial, municipal and autonomous regional admission committee for advanced school for approval. In the first part of June, the acceptance notices can be sent out and in the meantime the student's files are taken back to complete the entire selection work of recommended students for admission.

If advanced school is to select recommended students from high schools located in other cities, then the timing can be moved ahead properly. But it must also establish contacts with high school through the educational departments in charge.

In the long run, based on the demand of the construction of Four-Modernization , the long-term understanding and trust between high school and advanced school as well as credibility established in recommending students in the past, the advanced school can establish a relationship of recommendation for admission system with a certain high school(including high schools in other cities). The advanced school can conduct routine understanding of the teaching status and cultivation of outstanding students at these high schools, and provide assistance in the area of teaching. Meanwhile, it can introduce to the high schools its development, establishment of majors, teaching method and special requirements for accepting recommended students. After several years' practice, the possibility of gradually transferring to direct recommending students by a certain high school into a certain university will still exist.

As the situation and the needs of the "three faces" develop, the admission system of advanced schools must be further perfected and improved. The trial method of selecting recommended students implemented in the recent two years is an important aspect of the reform of admission system. There might be some abuses, shortcomings or contradictions during the process of trial implementation, but as long as everybody puts more emphasis on the Four-Modernization construction of the party, puts more emphasis on the section and cultivation of top-notch talents, and coupled with guidance and organization under the educational departments in charge to achieve close coordination between advanced school and high school while constantly summarizing experiences and improving method, it is believed that the system of selecting recommended students will be perfected and that its strong vitality will be displayed with each passing day!

STATE COUNCIL APPROVES REPORT ON IMPROVING PLACEMENT OF THIS YEAR'S GRADUATES OF ADVANCED SCHOOLS BY THE NATIONAL EDUCATION COMMISSION

People's Daily News, 1986. 3. 26. ③

Uphold the Reform Direction and Carry Through the Principle Of Compatible Learning and Utilization and Everybody Contributing His Total Capabilities

New China Agency, March 25, Beijing The State Council has recently approved the "Report on Placement Work of 1986 Graduates of Advanced Schools". The State Council points out in the notice of approving this report that the placement work for 1986 graduates of advanced schools must continue to develop the reform experiences of last year, uphold the reform direction, carry through the principle of compatible learning and utilization and everybody contributing his total capabilities, and conduct the political thought work well to assign the limited graduates to the posts which have the most urgent needs and which can best bring their effects into play.

The report of the National Education Commission indicates that the number of graduates from ordinary advanced schools nationwide in 1986 is estimated to be three hundred and eight thousand-odd. The placement for graduates must be based upon the guidelines and fundamental principles of national economic construction and the spirit of decision in educational system. The guidelines requiring overall arrangement,

reasonable utilization, emphasizing the key points and also giving consideration to the generality must be upheld. The key construction needs in the areas of energy source, transportation, communications, agriculture, forestry, education, light textile and raw material as well as military industry and national defense must be continuously enriched and enhanced, especially the needs in the areas of upgrading management level and economic effects of existing enterprises, and conducting technological reform, etc. For those graduates who came from remote provincial regions, they, in principle, must be assigned back to their home regions as long as their majors are needed in the remote provincial regions(including the directly affiliated units under the ministry or commission in remote provincial regions).

As for drafting up the plan for assigning graduates, the report points out that in principle graduates from local colleges are assigned to the local areas by each province, autonomous region and city directly affiliated to the State Council itself. Coastal and in-land provinces and cities must mobilize part of the graduates to assist those remote provincial regions, especially the link-up establishment between provincial regions. Graduates from colleges under the functional departments of the Central Committee, except for those with certain majors who are transferred to strengthen the key departments, the remainder is assigned by school's department in charge to its directly affiliated units and local businesses. Graduates from colleges directly affiliated to the National Educational Commission are the responsibility of the National Educational Commission . The method of combining top and bottom is adopted such that a placement plan by department and region is proposed from top down by the National Educational Commission. Under the guidance of this plan, the school referring to the demand situation provided by personnel departments and local units , and combines the direction of utilization of majors as well as specific situation of each province, then consults with departments, regions and the employing units, and presents a coordinated scheme which is subdivided by major units through the method of meeting between the supply and de-

The report indicates that Shanghai Communications University and Qinghua University continue to trial-implement the method of student signing up their wishes, school recommending, employing units evaluating to hire the superior ones under the guidance of the national plan.

The report points out that the placement policy for graduates of the year 1986 will emphasize solving the following several problems:

First is to further make the fixed term service system for graduates workable. The problem of transferring graduates who have been assigned to remote provincial regions from large and medium cities and have completed their terms of service must be solved first of all. Secondly, measures must be adopted to stop the practice of keeping graduates from transferring away. The report stipulates that no unit in any place is allowed to hold graduates who had been assigned according to plan and that the unhealthy trend in the placement work must be firmly put to an end. Third is to earnestly study the issue of assignment with compensations. The range of test point for assignment with compensations will not be expanded in 1986. Those test points already in existence in 1986 may continue their trial implementation.

The report clearly points out that for those graduates who refuse to comply with assignment disciplinary actions will still be carried out according to regulations in related documents in the past.

The report stresses lastly that each related department and advanced school should all pay attention to the political thought education work for graduated and should aim at the characteristics and realistic thinking of graduates to combine situation and policy education in order to motivate their patriotic fervor and spirit of working hard and doing pioneering work while encouraging them to establish an outlook on life of serving the people and consciously obeying the assignment to diligently serve for the socialist undertaking.

UPHOLD THE REFORM DIRECTION FOR PLACEMENT OF GRADUATES OF ADVANCED SCHOOLS

Staff Commentator  
People's Daily News

In recent years there have been some reform in the placement work of graduates of advanced schools. The authority of employing units and schools has been expanded, the middle linkages of placement have been reduced, the activeness of the three areas of school, employing units and students have been mobilized thereby giving vitality to the entire undertaking. The placement work for this year's graduates is about to begin. The key of this year's undertaking is to unify thought, uphold the reform direction and further refine and do the undertaking well.

Graduates of advanced schools are cultivated by the state with a plan. Under the present circumstances of shortage in professional talents, conspicuous contradiction between supply and demand, and the extremely unbalanced economic and cultural development between regions, it is still necessary for the state to strengthen the macroscopic management of graduates' placement and implement planned assignment. To do it this way is beneficial to ensuring the needs of key construction of the state are being satisfied; is beneficial to building up the forces in remote areas and weak departments; is beneficial to improving the unreasonable situation of exceedingly unbalanced distribution of

professional talents; and is in keeping with the overall interests of the state. This is exactly the purpose for implementing reform and is also the important premises for upholding the correct reform direction. Those who pit the execution plan against reform implementation and who think that as long as reform is required, then there is no need for planning and therefore favors that the state relinquishes all control to allow school full authority for independent assignment or allow students to find jobs themselves are obviously in the wrong. It is not in line with the spirit of economic system reform and educational system reform, nor is it in line with our national conditions.

There are numerous types of majors established in advanced school, with each one having different cultivation goal and learning contents and the same major in different schools having its own characteristics; the qualities, specialties and interests of graduates also vary; the demand conditions of employing units all over the country differ incredibly. For such a complex situation, if an all-inclusive, unified assignment plan is allowed to be drawn up by only a few people and college students are allowed to be transferred like "standard items" with identical specifications through which everything is rigidly controlled by the plan, then it is certain that the practice will be separated from reality; that the activeness of various areas will be limited; that the effects of graduates are supposed to possess can not be brought into full play; and that the healthy development of the reform of graduates' placement will be hindered.

The aforementioned two situations have decided the placement of graduates; and while strengthening the macroscopic management the microscopic aspect must be further made flexible. These two items complement each other. Only by keeping the macroscopic aspect under control and by managing it well can the microscopic aspect be flexible yet in good order; by the same token, only by allowing the microscopic aspect to be flexible can the implementation of macroscopic plan be ensured. To be specific, the state has an overall plan for the placement of graduates which lists the total control indexes by departments, provincial and

city regions and schools. As to the thousands of thousands of different situations of graduates, it is appropriate to allow the schools and employing units as well as their superior departments to have a free reign on determining which is the most suitable unit to go, based upon practical situations and through the method of arranging a meeting between the supply and demand sides to make it workable one by one. In the process of making it workable, if it is found that the plan laid down by the state is not exactly practical, then it is still appropriate to make proper amendment through open consultation based upon a practical spirit to perfect it. Thus, not only the spirit of reform is being incarnated but the solemnness of the plan is also being upheld; not only the needs of society are being properly taken care of but the vitality of various aspects are also being motivated and the responsibility of various areas enhanced. The placement work of graduates is certainly going to be conducted better when this approach is followed.

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